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Editorials

EVERY PHYSICIAN IN ILLINOIS SHOULD BELONG TO THE STATE SOCIETY. THE LOCAL MEDICAL SOCIETY IS THE BULWARK OF THE PHYSICIAN

Doctor, read carefully and learn what you receive from membership in the Illinois State Medical Society.

Money spent in dues for a state or local medical society is one of the safest, surest investments a physician can make.

For the nominal dues of approximately $10.00 a man gets a medico-legal protection and his fellowship in the society of his confreres as well as eligibility to membership in the American Medical Association.

The dues vary in the respective counties, from $7.00 down state to $15.00 in Cook County per year depending upon the local activities of the county society in which you reside. Illustrative of the benefits secured from such affiliation rate the following:

1. For approximately $10.00 per year you get medico-legal protection; membership in your County and Illinois State Medical Societies and the ILLINOIS MEDICAL JOURNAL. Membership in the above makes you eligible also to fellowship in the American Medical Association. Affiliation and Association with this large representative body of men is of great value and importance to every physician.

2. Medical Defense. Out of your annual dues paid, the trustees of the State Medical Society are required to turn $1.50 over to the "medical defense committee" for the protection and defense of members of the society against whom suits for malpractice or damages may be brought. For years the Illinois State Medical Society has been meeting all expenses of such litigation—that is, court costs, attorney's fees, costs of appeals, witness fees, the cost of record—no limitation being placed on this sort of expense of an individual case.

This means that if you become a member of the Illinois State Medical Society you will be defended in every effective manner possible against suits for damages for alleged malpractice, as well as attempted blackmail. This one feature alone is worth many times the cost of membership. Private defense companies are charging $20.00 to $75.00 per year and upwards for the defense and indemnity.

Medical Legislation. Also $1.00 is set aside for a fund to be used by the Public Relations Committee for the purpose of combating vicious legislation.

Members of the Illinois State Medical Society are also eligible to membership in any or all of the various affiliated special medical societies in Illinois.

3. Membersship in the Illinois State Medical Society. All members of any county Medical Society are ipso facto members of the Illinois State Medical Society and will receive all publications of the State Society without any additional fees, dues or subscriptions.

Memberships in the state and local society are necessary before you can affiliate with the reputable professional societies of the country and the American Medical Association. In some states a year's membership in the local society is required before they can secure a license by examination or reciprocity.

4. The Journal of the Illinois State Medical Society. This Journal, owned and published monthly by the medical profession of Illinois, is sent free to each member. The official organ of the Illinois State Medical Society, one of the largest and most influential state organizations in the country, it is among the most comprehensive state medical journals both in point of circulation and editorial scope. It ranks highly, both in size and in influence with all medical journals. *Further, in the fight against economic evils oppressing the medical profession, the* ILLINOIS MEDICAL JOURNAL *has been not only a leader, but ever a pioneer.* In the Journal is printed the proceedings of the Illinois State Medical Society; the papers presented at the Tri-State District Medical Society (Illinois, Iowa, Wisconsin, and Minnesota) and the Chicago Medical Society, which is the largest local medical society in the world. The Chicago Medical Society meets every week, and it has fifteen branches, proceedings of which also are printed in the ILLINOIS MEDICAL JOURNAL, as well as of eleven affiliated societies, namely; Gynecological, Pathological, Ophthalmological, Surgical, Urological Laryngological and Otological; Orthopedic, Pediatric, Neurological, Roentgen Ray, Medical Legal. On the programs of these various societies appear from time to time a great many of the most eminent men of America and Europe. In the Journal also is published the papers read and the reports of all meetings of the respective county society meetings throughout the state, as well as all the news of interest to medical men in Illinois and throughout the United States. The price of the Journal for non-members is $3.00 per year. It is sent to all members of the Illinois State Medical Society, as one of the perquisites of membership.

5. Reformation of Medical Conditions. Many reforms are being carried on which in previous years were impossible. A few years ago the Medical Legislation Committee of the Illinois State Medical Society succeeded in having passed by the Illinois State Legislature what is considered the best medical practice act in the United States. This Society has a representative as chairman of this committee in Springfield, and the committee is working to the good advantage of medicine in this State. The committee is receiving financial support from the State Medical Society as necessity requires. Every year different cults and branches of so-called medicine try to have special laws passed which will license them through examinations which do not conform to the medical practice act. It is only through large membership, financial and moral support that this type of legislation can be controlled.

Abuse of medical charities, illegitimate and unethical methods of practice, and all the other evils which have embarrassed the physician and reduced his income can only be successfully handled by a well organized and compact profession, able to take a positive stand on these matters and to carry out its decisions. There is in view (under thorough organization), relief from many of our present difficulties. There never will be devised a patent mechanism which will relieve the doctor of participations in our political activities. Physicians must govern themselves or they will be misgoverned.

6 Eligibility to Fellowship in the American Medical Association. The only way in which a physician can become a member of the State or

National organization is through the local society of the County in which he lives. The advantages and privileges to be gained through membership in this great association need not be enlarged upon. Fellowship in the American Medical Association includes The Journal of the American Medical Association, the greatest weekly medical journal published in the United States.

7. Regulations of Pharmaceutical Preparations. The American Medical Association has established a committee, known as the Council on Pharmacy and Chemistry, for the purpose of examining, analyzing and reporting from time to time, to the profession its findings on the most important proprietary preparations, such as the general practitioner is constantly being importuned to buy and prescribe for his patients. This movement, which is of vital importance to every practicing physician, deserves the support of all members of the profession, regardless of society affiliations. By becoming a member of your local society you will come more closely in touch with organized and systematic efforts for the uplift and benefit of the profession at large.

8. The Completion of Medical Organization in Illinois. The Illinois State Medical Society, today, comprises three-fourths of the reputable members in the State. It is to the interest of every physician in Illinois to complete and strengthen this organized and concerted movement on the part of the profession for the betterment of local conditions. The suppression of quackery, the prevention of enactment of vicious legislation, and the consummation of other needed reforms can only be accomplished by complete and thorough organization and unanimity on the part of the profession of the State. In this work the support and cooperation of every reputable physician is requested.

The welfare of your profession depends upon the support you give it. A well organized profession means greater respect and better compensation.

The Illinois State Medical Society desires your support and cooperation. Go to the next meeting of your local or county society and meet the other physicians of your neighborhood. Ask one of the officers of the society for an application blank, fill out the blank, either send or better hand it to the President or Secretary together with the fee for membership in your county society and thus secure membership in the organized profession of the state and participate in the benefits and privileges of medical organization.

Qualifications for Membership—Every registered physician residing in any county, who is of good moral and professional standing and who does not claim to practice any exclusive system of medicine, shall be eligible for membership.

YOUR STATE AND COUNTY MEDICAL SOCIETY GIVE UNAPPROACHABLE ECONOMIC SERVICE

Organized medicine, as vested in your county and state society provides the staunchest of economic and professional protection.

This unapproachable economic and legislative service to the thousands of physicians in Illinois is so conspicuous and far-reaching and so apparent that the well versed physician wonders what in the world justification there is on the part of certain physicians to claim that no economic service is offered or given by organized medicine in Illinois or elsewhere.

In the face of such false and misleading statements it is well to epitomize briefly some of the unconscious benefits that have accrued to the profession from the various officers and specific committees of the respective county medical societies and the Illinois State Medical Society and that have, so to speak, continued "to toil upwards in the night."

Organized medicine, as vested in your county and state society, provides the staunchest of economic and professional protection.

This is done at a minimum price. Organized medicine gives the members of its accredited societies, the maximum of efficient service at a cost that is almost picayunish. This is quite in line with the ratio of skill and science versus financial return with which the profession serves the public. And all of this is in juxtaposition with what the various cults and isms levy upon the members of their numerous organizations. For instance chiropractors in Illinois pay annual dues of $120 per capita, merely as a starter, for the upkeep of their organization. Further, special assessments up to the sum of $500 are frequently the order of the day.

As a result of foresight and hard work, the organized profession of the state prevented the

enactment of the notorious Sheppard - Towner Bill, ten years ago, in so far as the State of Illinois is concerned. At its recurrence for consideration ten years ago, this bill was again repelled as it never reached a vote. Again eight years ago, so influential had the organized profession become that its sponsors held that "discretion was the better part of valor" and after due deliberation, did not re-introduce their bill.

There were only five states with sufficient foresight to turn down this nefarious legislation. Illinois can take pride in being one of the five. The five states are Connecticut, Illinois, Kansas, Maine and Massachusetts. Again ten years ago, in the Illinois General Assembly, nearly fifty bills of a detrimental medical nature were introduced. Not one was written on the Statute books. Again three years ago, as well as this year, in the Illinois General Assembly, over one hundred bills of a detrimental medical nature were introduced. Not one was written on the Statute books.

No other state in the Union can show such a record. It stands for *pre-eminent organization service to membership.*

For twenty years the organized profession of the state has kept watch and ward over the interests of the profession. From the perfection of the Medical Practice Act in 1923 to the present day, continuous service has been given the physicians of the state of Illinois by their state and county organizations. During the past twenty years the fight has included the overflow of some almost incredibly favorable laws for quacks and charlatans. No other state has been so successful in such prevention of vicious medical legislation. Illinois comes nearer than any other state in the Union of possessing one standard for entrance into the practice of medicine. Illinois is not afflicted with special boards, conditions and the like, by which the inept traffic in human life, nor are its ethical doctors humiliated by having to sit on the same boards with quacks and representatives of vicious cults.

Referring again to the Medical Practice Act in Illinois, it is one of the most capable pieces of legislation of that nature that is in existence. Furthermore, the Supreme Court has upheld its validity, not once but *on four separate occasions.* This piece of legislation owes its place on the Statute books to the organized medical profession of Illinois. It is a masterpiece and it is the work of organized medicine in the state.

Advisability of a blanket act administered by one board including all branches of human treatment, is self-evident in view of the multiplicity of laws and examining boards in many states. When the proposed measure was pending, endless effort was made by drugless healers to liberalize the act. Through the untiring efforts of officers of the various medical societies of the state, the bill passed in essentially the same form as that in which it was offered.

Many members of the General Assembly are in the real estate business. According to law these must pay a renewal license fee annually. This group sought attachment of a $5.00 renewal fee on the Medical Practice Act. Vigorous opposition by organized medicine, hours of conference with the leaders in that session of the General Assembly enabled doctors to defeat the amendment, and save a great deal of money and needless red tape for the physicians. With about twelve thousand medical men in Illinois, defeat of this amendment approximates a saving of $60,000 annually to these physicians, or practically half million dollars since the passage of the act in 1923.

In 1923 the Sheppard-Towner Bill was championed by a large lobby of women of education who waged an intensive campaign for the adoption of the provisions of the Federal Act by the State of Illinois. During the hearing on that bill in Congress in 1921 Illinois was the only state that sent a physician to Washington to oppose the passage of the Federal Maternity law. Despite the able protest of Dr. Charles E. Humiston, then president of the Illinois State Medical Society who represented us, unfortunately the bill was passed. Every state in the union accepted the act except five; viz, Illinois, Maine, Massachusetts, Kansas and Connecticut. The protest made by Illinois at that time later bore results against federal subsidies of this sort. The Illinois State Medical Society has aided in defeating several hundred pernicious bills in the last four Illinois General Assemblies. Out of the twelve hundred bills introduced at the 1927 session, one hundred twenty-six, or over ten per cent., had either a direct or an indirect bearing on the medical men of our state. In 1925, after a bill curtailing public health departments in the necessary performance of their

work had been literally "kissed" through the House and Senate and the governor urged to sign the measure by the League of Medical Freedom call went out to representatives of the Illinois State Medical Society. After a conference with, and upon the advice of this committee, the governor vetoed the bill.

Diversion of the tremendous post-bellum lay interest in the practice of medicine with an insistence for participation therein that has verged dangerously towards state medicine and the practice of the profession by lay-persons, has been a problem of organized medicine, with the life saving idea of turning such interest from a force pernicious to the public welfare into an active auxiliary of the recogiized medical profession. The medium for dealing with this vital problem has been sought for and found in the educational committee of organized medicine. Through this committee, organized lay-bodies, especially of women, either club women, or those who had felt the urge of concerted benevolence as vested in war auxiliary work are being shown that the best contribution they can make for public health and infant welfare is to work through organized medicine rather than through organized laymen. This problem, including as it does the tremendous amount of free service given through the endowed clinics of private foundations, touches upon the similar debauching of the province of ethical medicine through the federalization of over sixty per cent. of the hospitals of the country. Government ownership of so large a percentage of hospitalization facilities of the country is of a piece with the noose that has been slipped over the heads of the taxpayers and the profession by such legislation as the Sheppard-Towner bill, and all of which has been and is being fought by organized medicine. Especial study, careful appraisal and gradual solution, of all these problems and their ramifications reveal a seemingly insurmountable task for the medical profession of the nation. Combating these terrific problems with their tremendous financial backing, has been a vital labor, and continues to occupy the time and keenest mental concentration of the officers of ethical medical organizations of the State of Illinois. An enormous amount of time and an inestimable amount of personal and financial sacrifice on the part of these officers has gone into the solution of these problems, as far as they have been solved and into the protection of the rights of ethical physicians, and even further for those of the people of the state themselves. A final word may not be malapropos about what in future may prove to be the weakest link in the chain and one to which the education committee has bent much attention. The place played by organizations of women in the furtherance of state medicine is serious. Many of the women who said that they thought the Sheppard-Towner law was a beneficial thing simply did not know what they were talking about, so it was discovered, as their emotions only had been appealed to, and investigation showed that the average club woman who spoke blithely about the excellencies of the Sheppard-Towner bill thought that it means financial maternity care for the poor.

The education committee sponsored by the Illinois State Medical Society has paid especial attention to the education of club women and other associations of women along the lines of what organized medicine is doing. As a result, today there is a far better understanding between these bodies and the organized profession and a spirit of cooperation on the part of these lay-bodies to the end that the problem of organized medicine is to receive and adopt their assistance, but not to suffer their dictation.

Where formerly organized medicine met with misunderstanding opposition, now organized medicine is receiving support and a large amount of cooperation from the Illinois Federation of Women's Club, the Parent-Teacher Association, and numerous similar and affiliated organizations. All of this has been accomplished through untiring endeavor from the diligent, conscientious, far-seeing, self-sacrificing executives who have served as officers for many years of the state society and its components.

VOLUNTARY HOSPITALS SHOULD NOT BE ALLOWED TO PASS OUT OF EXISTENCE. THEIR FINANCIAL SITUATION HAS BECOME AN ECONOMIC CRISIS

Refinancing of voluntary hospitals is an item of salient import in the general reconstruction now taking effect. The high class voluntary hospital is one section of auxiliary medicine where the menacing specter of state control can be hobbled at least. These institutions should not be allowed to pass out of existence. Their

economic situation has become an economic crisis. Nor is this a temporary difficulty. It is far more than a matter of reduced endowments, ill-fated investments, slashed budgets, reduced operating expense and depreciated patient income. As a matter of fact our entire magnificent private hospital structure, unequalled in the world or in time, has been a house built upon the sand. Salvation depends upon a good jacking up of the system and a solid, brand new rock foundation.

Great Britain has pulled herself well out of her economic muss. The life line thrown out to voluntary hospitals in Great Britain is worth examination. Before literal adoption here its merits should be well examined by both the medical profession and the laity. A hasty commitment is ever unfortunate. But the plan is meritorious.

In the *New York Times* we are told by E. H. Lewinski Corwin that:

"The experience of Great Britain in this particular regard is worthy of close study. The hospital situation in that country became acute a decade or so ago. The burdens of taxation, the disorganized trade following the World War, and the growing difficulties of providing employment impoverished the British population, and the maintenance of social insurance placed enormous responsibilities on the government exchequer. The wealthy families became less able to meet the growing demands on the part of various charitable endeavors, and the situation of the voluntary hospitals in Great Britain in the beginning of the last decade became so desperate that a special committee was appointed by the government early in 1921 to inquire into the situation. This special committee was presided over by the Viscount Cave.

"The government committee reported under date of May 21, 1921. To the fundamental question as to whether the voluntary hospitals should be encouraged to continue, or whether it would not be more desirable that they should be turned over to the State and be henceforth maintained by taxation, the unanimous answer of the committee was to the effect that 'the money loss to the State would be a small matter compared with the injury which would be done to the welfare of the sick for whom the hospitals are provided, the training of the medical profession and the progress of medical research,' if the voluntary hospital should be allowed to pass.

"The committee recommended that a Parliamentary grant of £1,000,000 be made, and that the money be distributed under the direction of a specially appointed voluntary Hospitals Commission. Such a commission was appointed under the chairmanship of Lord Onslow, but the grant voted by Parliament was reduced to £500,000. The Hospitals Commission rendered its final report in 1928.

"The commission, like its predecessor, the government committee, laid stress on the need of broadening the basis of support of the hospitals through so-called contributory schemes.

"In the words of the government committee report, 'if the voluntary hospital is to continue to prosper, it must rely not only on the large subscription and gifts, but also, and to an increasing extent, on moderate and continuous contributions from all classes of the community.' But it was insisted that there must be a direct quid pro quo for these contributions.

"*It may seem strange that, in a country where compulsory insurance against the contingency of illness exists there* should be need for further arrangements to provide for hospitalization. In Great Britain the treatment provided for by law in case of illness is of a kind which can be properly undertaken by a general practitioner 'of ordinary professional competence and skill'. The health insurance act does not provide for treatment requiring the facilities of a hospital. The government committee did not express a definite opinion as to the desirability of broadening the scope of the act to provide payment for hospital care.

"There were already in existence several schemes of contributory collections, outside of individual hospitals—those of Oxford, Sussex and the several Hospital Saturday and Sunday Funds. In London the collections were made by several agencies, of which the Hospital Savings Association became most important.

"There are at present at least 270 hospital contributory schemes in Great Britain, differing from one another in details of practice and privileges accorded to their contributors. They have an enrolled membership of about 6,000,000, not including dependents of contributors. They contribute annually into the treasury of the voluntary hospitals £2,500,000, or from 60 per

cent. to 70 per cent. of the entire income of the hospitals.

"A brief description of the plan evolved by the Merseyside Hospitals Council of Liverpool may suffice to bring out the essential features of the contributory hospital schemes.

"In the Liverpool area there are twenty-two voluntary hospitals and all of them have agreed to pool their resources as a unit and to abstain from making individual appeals to the community for support. The city authorities, the public assistance officers, organized labor, the medical profession, the churches and the university have allied themselves with the hospitals in conducting annually a financial campaign for the maintenance of hospitals.

"The industrial workers have consented to make weekly contributions toward the support of hospitals and toward their own protection in case of illness requiring hospitalization. The employers of labor have agreed to deduct the voluntary contributions of their workmen and to turn them over to the central fund under the Merseyside Hospitals Council, plus their own contributions, the size of which varies. The employers, as well as workmen, are represented on the central council as on its various committees. In other words, the Merseyside Hospitals Council serves both as a community chest for the hospitals and as a quasi hospital insurance fund.

"The plan, as it has been worked out there, is only a few years old and is admittedly an experiment. The penny in the pound contribution was initiated simply because of its slogan value and the ease with which contributions could be calculated. It does not take into consideration the size of the family of the contributor. It bases the contribution in proportion to earnings of the individual rather than in proportion to the risk involved.

"In return for his weekly contribution, the fund guarantees to the contributor and his dependents the payment of hospital treatment, if and when needed, as well as auxiliary services, such as ambulance service, surgical appliances, extra nourishment, convalescent care, spa treatment and so on. Although the council has practically succeeded in balancing the hospital budgets, it recognizes that the penny in a pound contribution is inadequate to meet the cost of hospitalization. For the time being the council has decided to keep the penny in the pound basis intact, but it is asking every one to give a penny for each pound and a part of a pound, the employer to add one-third of the collection in his organization.

"Thus every one in the scheme will pay a penny if he earns a pound or less; he will pay two pence if he earns two pounds or less; and three pence if he earns three pounds or less and so on. With this change in the contributory scheme, the average contribution will range from 3¼ to 3½ pence a week, and this contribution is expected to meet the existing hospital deficits and to pay for all the auxiliary services.

"Under an act of Parliament of 1929, the former poor law hospitals have been taken over by the municipalities and are providing for certain types of infectious and chronic maladies and for acutely ill patients who are destitute. A contributor to the Merseyside fund, sent by a physician to a municipal hospital, is, by virtue of the arrangement made, free from financial investigation. Under this plan the wife of the contributor and his bona fide dependents, that is, those who are resident with him and wholly dependent upon his earnings, are entitled to full hospital benefits.

"The Merseyside contributory plan admits also clerical employes, provided their incomes do not exceed the limits agreed upon in concert with the medical profession as insufficient to obtain adequate service in any other way. Persons whose incomes exceed the minimum are not precluded from sharing in the contribution of a penny in a pound, and they may obtain admission to a voluntary hospital on the recommendation of their family doctors, but they are not entitled to free medical service while in the hospital.

"The point may be raised whether the pattern of organization and function of the British contributory schemes is applicable in this country. In many of our large cities, and in some counties, we have hospitals maintained by tax funds, which offer free service to those unable to pay for hospital and medical care. Those who use these services need not be certified by the authorities as paupers. There is, therefore, less urge here on the part of wage earners to provide for the contingency of illness on an insurance basis. In this country of 'rugged individualism' there is more paternalism in many avenues of life, particularly in provision for the sick, than

in any European country outside of Soviet Russia.

"For American purposes the plan would have to provide for the higher levels of our industrial population, as well as for clerks and salaried employes, small shopkeepers and the like. This may lead to the inclusion in the plan of facilities of a semi-private character, which would raise problems of organization entirely outside of the scope of British experience and which, in a large American city, would require for their solution an extent of cooperation which hitherto has not existed among the hospitals.

"Another difficulty which would have to be overcome before any such plan could be put into operation here is that of the relationship of the insured to the physicians inside and outside of the hospitals. These problems are not only of a financial nature; they relate to proper professional service and the hospital affiliations of physicians and surgeons. Whatever form the group insurance plan for hospital care may take in this country, if it be adopted at all, it will not be in the nature of a sickness insurance as understood abroad. It will be merely a voluntary distribution of the burden of cost of hospital care throughout the community for the benefit of the participants as well as for the hospitals.

"The experience of several American hospitals which have independently organized group insurance plans is rather encouraging from an actuarial point of view. Baylor University Hospital has demonstrated that a group insurance plan could be worked out. Two other hospitals in Texas are meeting the financial problem for themselves and their patients in this way, and the Hahnemann Hospital in Philadelphia is experimenting with a plan of similar character. An association was formed in Brattleboro, Vt., to provide a similar opportunity for the people of that city, and recently the hospital in Cooperstown, N. Y., serving a rural section, organized a method of providing medical and hospital care in the community on a rather comprehensive scale. The Cooperstown experiment, however, is more in the nature of a sickness insurance and may find application in only a limited way in rural sections.

"There is a movement on foot in several communities to afford opportunity to provide against the contingency of hospital care on an insurance basis. In Essex County, N. J., the hospital council has voted in favor of proceeding with such a plan. This undertaking undoubtedly will be wanted closely by other communities."

DR. J. E. CAMP, 75, DIES; PRACTICED FOR 53 YEARS

Dr. Julian E. Camp, son of Lorin Wallace and Emma Elizabeth Camp, was born at Montrose, Pennsylvania, on February 21, 1858, and died at the home of his son, Dr. Harold M. Camp, at 322 South B Street, Monmouth, Illinois, at 1:00 P. M., Monday, October 30, 1933.

Dr. Camp was graduated from the College of Physicians and Surgeons, then the Medical Department of the University of Iowa, at Keokuk, on March 1, 1880. He practiced his chosen profession continuously at Brooklyn, Illinois, for 47 years, then moved to Augusta where he had practiced for the past six years.

Dr. Camp knew all of the hardships of the country physician as for many years, during the winter months, he was compelled to use horse and buggy, cart, and many times go horseback on the regular calls. During the later years of his practice he enjoyed the benefits of modern travel and roads.

Dr. Camp was united in marriage to Fanette T. Taylor, daughter of Henry W. and Cornelia Manlove Taylor, of Brooklyn, on April 6, 1881, and to this union were born, Lorin T. Camp, who died in 1908, Dr. Harold M. Camp, Monmouth; Mrs. Ruth E. Craig, St. Paul, Minnesota; and Fred L. Camp of Huntsville. Dr. and Mrs. Camp celebrated their fifty-second wedding anniversary last April, and Mrs. Camp, the daughter, and two sons, one sister, Mrs. Mary L. Henderson of Los Angeles, California; three granddaughters and two grandsons survive.

He was a member of the Presbyterian Church, and until his illness prevented it, taught his Sunday School Class regularly. He was a member of the Hancock County Medical Society, Illinois State Medical Society, and a Fellow of the American Medical Association, a member of Mohammed Temple, A.A.O.N.M.S., Peoria, Almoner Commandery, No. 32, at Augusta, Illinois, and of LaMoine Lodge No. 935 A. F. & A. M., at Brooklyn.

Funeral services were conducted at the Presbyterian Church, Brooklyn, Illinois, on Wednes-

day afternoon, November 1, at 2:00 P. M., in charge of Rev. John M. Thompson of Warsaw. Services at the grave was conducted by the Masonic fraternity.

Dr. Camp went through the old saddle bag days, and his son, Dr. Harold M. Camp, has in his possession a pair of unusually fine saddle bags which he used fifty years ago, when he covered an entire county.

Dr. Camp was unusually interested in psychiatry, and had in his library probably one hundred volumes on this subject alone. During his fifty-three years of practice, he accumulated a library of some fifteen hundred volumes covering every subject in the entire medical and surgical field. Although spending his entire professional life in the country, he attended medical meetings regularly, both near and far, and took a number of long post graduate courses, at fairly regular intervals for forty years.

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WAITING FOR THE DOCTOR AND MAKING THE DOCTOR WAIT
"OH, TELL HIM TO HURRY, HURRY!"
"DOCTOR, FOR HEAVENS SAKE, HURRY! TH' BABY'S IN CONVULSIONS! HURRY! HURRY!"
When it's important that the baby lives.
"TH' DOCTOR'S BILL. OH, WELL HE CAN WAIT"
1933
SEP.
2
When it's unimportant whether the doctor lives.

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Correspondence

THE CRUSADE AGAINST CANCER

Cancer research work is being actively carried on in all the large cities by both medical and lay organization, but though much appreciated by the smaller communities it is not being carried on by them as actively as it should be. The organization of the crusade against cancer must be based mainly on a wide publicity campaign and on the constant training of the physician. Histopathologic research is necessary for the purposes of early diagnosis and can be managed by the pathologist of any well organized hospital. An annual toll of 200,000 persons is to be regarded as the basic figure in this country and therefore every county medical society in our state should have a tumor clinic at one or more hospitals as part of their work for cancer control. Such a group staffed by some of their own confreres especially interested in cancer clinics and tissue diagnosis will be fascinating and helpful to all, and lead to the early use of surgical intervention or the application of physical agents.

These clinics being a part of the society's activities can be operated uniformly in an advisory capacity only, if desired, without financial gain to the sponsoring institution and without expense to the patient or the referring physician. They may meet once or twice a month, depending on the size of the hospital and the material available. Such tumor clinics will increase the knowledge and the capacity of a large group of physicians and also of many institutions and thus carry on research with greater facility and at a minimal expense. *If you haven't a cancer clinic in your county medical society, why not?* At this time, when we are not so busy, these clinics will not only be taken care of easily, but can be in the nature of a past graduate course along cancer lines.

Public Policy Committee,
Illinois State Medical Society.

DOCTOR PALMER FINLEY EXPLAINS HIS ATTITUDE ON MATERNAL MORTALITY

Madison, Nebraska, October 18, 1933.

To the Editor: I noticed your editorial comment in the last ILLINOIS MEDICAL JOURNAL on Palmer Finley and his book "The Story of Childbirth," and since Dr. Finley is a personal friend of mine I sent him the JOURNAL. His reply and comment are enclosed herewith.

F. A. LONG, M. D.,
Editor, Nebraska State Journal.

The following is Dr. Palmer's letter:

Omaha, Neb., Oct. 16, 1933.

DR. F. A. LONG,
Madison, Nebraska.
My dear Dr. Long:

Many thanks for the editorial in the October number of the ILLINOIS MEDICAL JOURNAL. If the editor had taken the trouble to refer to the copy of *The Story of Childbirth* sent to him in August by my publishers, he would have found that *Time* erred in crediting me with the statement: "It is generally agreed that the United States is the unsafest place in the world to have a baby"—(see page 235). This was a quotation from an eminent obstetrician and not my own expression. The remaining portion of the paragraph is correctly stated and credited.

What I did say (page 218) is as follows: "The indictment has been made and often repeated in the medical and lay press that the maternal mortality in the United States is the highest in the civilized world; and, moreover, that the rate has not been lowered since 1915 and not appreciably lowered for a much longer period of time. The White House Conference (I was a member of this Conference) is not willing to go on record as confirming this statement, but it does submit undeniable evidence that the maternal and infant mortality in the United States ranks high among the civilized nations of the world.

This, I believe, is a fair statement of fact based upon the most reliable statistics at our disposal in Washington. I am in full accord with the editor of the ILLINOIS MEDICAL JOURNAL in resenting the sensational writings in the lay press when such writings over-stress the facts for dramatic effect. Our maternal mortality is relatively too high and we need the cooperation of the public in reducing it at least to the level of those nations that are making the best showing (Sweden, etc.) and I have faith that in another decade or two this will be accomplished.

Cordially yours,

PALMER FINLEY.

ONLY TWELVE COOK COUNTY PHYSICIANS ON THE RELIEF ROLLS

During the past six months, articles have appeared in the Daily Press, stating that seven hundred physicians in Cook County were on the Relief Rolls.

Each time this statement appeared, communications were written to ascertain the basis for this number. At no time, were we able to find anyone who could definitely state whether the alleged number was accurate.

In an effort to furnish the members of the Chicago Medical Society with authentic information, a request was made at the Bureau of Public Welfare of Cook County to check the various relief lists in an attempt to arrive at an accurate number of physicians actually receiving relief.

We quote from a letter dated October 18th and signed by Ruth Coleman, Assistant Director, Cook County Bureau of Public Welfare: "I have located the report of the Small Trades investigation which included professional persons. Their report, as of September 1, 1933, showed that 12 persons classified as physicians were receiving aid from the Unemployment Relief Service Division or the Field Service Division of the Cook County Bureau of Public Welfare or from the Jewish Social Service Bureau, or from the United Charities."

C. M. S. Bulletin THOMAS P. FOLEY,
Secretary, Chicago Medical Society.

MEDICAL CARE OF THE INDIGENT

The medical care of the indigent has been a vital problem in every community throughout the country during the past two or three years. With the large number of unemployed, low prices for farm commodities, and the high overhead of the physician, he probably has had as much reason for giving this subject serious consideration as any other man in our business or professional world.

The Illinois law places the burden of caring for the indigent on the township, as the basic unit of our government, consequently in many communities funds available have limited the payment for medical care so much that physicians have received only a small percentage of their regular charges for medical care of the unemployed indigents.

The Federal Relief Administration a few weeks ago, released Rules and Regulations No. 7, governing the medical care of the unemployed indigents receiving aid from Federal funds. They ask the State and County Medical Societies to submit a program based on Rules and Regulations No. 7, for giving the necessary care to those unemployed indigents throughout the state. These rules and regulations were published in the Journal of the American Medical Association, on September 23, 1933, and they should be read carefully by every physician in Illinois so that he will be thoroughly familiar with them.

It has been the policy of the Illinois Emergency Relief Commission to pay for medical care of indigents only in those communities where local funds are entirely exhausted, having in mind the conservation of funds available for relief care.

The Illinois State Medical Society through the Council, selected a committee of seven to draw up a program which when approved by the Committee, was to be submitted to the State and Federal Relief Organizations. This program has been adopted by the Committee, and has been submitted to the Relief Commission for their approval.

Every County Medical Society in Illinois has been notified of this action, and has received definite information concerning it, from the Secretary of the Illinois State Medical Society. The Committee on Medical Economics has attempted during the past two months, to get some definite information from each county society, relative to the method of giving medical care to indigents in the various counties, the percentage of regular charges allowed, and the approximate amount of money that has been expended in each township in Illinois for this purpose during the past year.

Although several letters have been sent out urging an early reply to our questionnaire, there are many counties in Illinois which have not as yet sent in their data. In order that the State Medical Society can work to the best advantage in getting a more equitable distribution of medical care to indigents, and seeing that physicians are better paid for this important work, it is essential that we have this information, and we again urge all societies which have not as yet submitted the data to our Secretary, as re-

quested, to procure the information and send it in at once.

The Illinois State Medical Society has been intensely interested in the subject of Medical Economics for many years, and have sent many speakers to county societies throughout the state to talk on the subject during the past seven years. We believe it is advisable for every active society in Illinois to have at least one meeting each year, devoted to a thorough consideration of the business side of medicine, which has been neglected so much in the past.

In the October number of the ILLINOIS MEDICAL JOURNAL the blank approved by the Society some years ago, for making periodic health examinations was printed. These blanks may be procured from Dr. Harold M. Camp, Secretary, Illinois State Medical Society, Monmouth, Illinois, at one cent each.

Periodic health examinations will give the business or professional man the best safeguard for his health, and every physician in Illinois should be ready to tell all inquiring friends what a periodic examination is, and what it means to the man having such an examination at regular intervals. These examinations of the apparently well, frequently reveal some abnormal condition which when detected in time, may be alleviated and give the individual a better opportunity to live his normal expectancy, whereas otherwise they may become so advanced before they are detected by the individual himself that they may shorten his life.

A speaker representing the Illinois State Medical Society recently when appearing before a large lay audience, talked on Periodic Health Examinations. After the talk was ended he offered to spend some fifteen or twenty minutes answering questions that his audience might ask. One man said, "Where can I procure such an examination?" while another said, "Why has my own physician not told me about such examinations, and their value to the average business man?" The average physician has been accused in the past of not being sufficiently interested in the subject of periodic health examinations to let his friends and patients know about them, and their value to the one receiving them. The Committee on Medical Economics is anxious to see every member of the Illinois State Medical Society making these examinations regularly and keeping adequate records of their findings so that these records will be of value in the future, when the individual comes back for their regular examination.

The Committee on Medical Economics is anxious to be of service to all county medical societies in Illinois, and we will do everything possible to help in a campaign for stimulating physicians in their interest of this subject. We have been asked to discuss various phases of the subject in the JOURNAL each month, so we will have something further to say on the subject next month. Committee on Medical Economics.

Edw. S. Hamilton, Chairman,
Kankakee, Illinois.

EVERY ETHICAL PHYSICIAN IN THE STATE SHOULD BELONG TO THE ILLINOIS STATE MEDICAL SOCIETY

In numbers there is strength. A united medical profession can brush away any and all obstacles. Are all the eligible physicians in your county members of your local medical society? If non-members of the local society are discovered get busy and try to induce them to join at the earliest opportunity.

Since the publication of the last edition of our national directory, hundreds of recent graduates have located in cities in Illinois. Great numbers have moved within the state from one city to another; an alarming number of physicians have died in the interim; hundreds have moved to other states and a similar number have come into Illinois from other commonwealths.

Below we publish an up-to-date list of physicians residing in towns and cities of Cook County outside of Chicago. The publication of this list should facilitate the officers of the local society in recruiting new members.

Names in Capitals indicate Fellows of the American Medical Association.

ARLINGTON HEIGHTS, 4,997, COOK

BEST, BRUCE TAYLOR
Elfeld, Edward A. (H)
Gable, Edwin Otis
KIONKA, PAUL FRED'K
McClintock, John Calvin
PFAFF, EARL KESLEY

BARTLETT, 504, COOK

STAIB, OTTO WM.
STEVENS, EDWIN LUTHER
Treichler, Martin John

BELLWOOD, 4,991, COOK

MLADICK, EDWARD ANTHONY
Sweeley, Merle E.

BERWYN, 47,027, COOK

Allen, Geo. Douglas, 6537 W. Roosevelt Rd.
Becht, Frank Christian, 7039 W. 34th St.; office, 3239 Grove Ave.
Bennewitz, Anthony Hugo (See Cicero)

BISHOP, ADOLPH EDWARD (290 Southcote Rd., Riverside); office, 6243 W. 22nd St.
Brown, Artemas
(See Chicago)
Bunata, Emil Jerry, 6805 W. 22d St.
Busch, Geo. C., 6238 W. 22d St.
CAPEK, LADISLAV V., 1843 Kenilworth Ave.; office, 6340 W. Roosevelt Rd.
CARDER, BRYAN JAMES, 6318 Ogden Ave.; office, 6626 W. 22d St.
CARLSON, GUY EDWIN, 1918 S. Kenilworth Ave.; office, 6756 W. 22d St.
CHVATAL, JAMES F., 2313 S. Scoville Ave.
DEANE, FRANK HERBERT, 7034 W. 35th St.; office, 3144 Oak Park Ave.
DVORAK, VACLAV GEO. (1810 S. Springfield Ave., Chicago); office, 6226 W. 22nd St.
ECHERER, TALLY JOHN, 2240 S. Ridgeland Ave.; office, 6324 W. 22d St.
Esau, Jacob Nick, 1326 S. Cuyler Ave.
FARA, FRANK JOHN
(See Chicago)
Farrell, Edward Jos., Berwyn Hospital
Fischer, Oscar G.
(See Chicago)
FOUCEK, BOHUMIL CHAS., 1928 S. Highland Ave.; office, 2148 S. Ridgeland Ave.
GOOD, GEORGE WELLINGTON, 3201 Ridgeland Ave.
Griffith, Paul Russell, Berwyn Hospital
Grout, Benj. Chase, 6846 Roosevelt Rd.
Hall, Albert Winter, 3136 Wisconsin Ave.; office, 6820 Windsor Ave.
HINDS, ANNA BOLENDER, 3337 Oak Park Ave.
HRUBY, FRANK EDWARD
(See Chicago)
HUMEL, RICHARD JAMES, 6346 W. 22d St.
HUMMON, EMMA M., 3318 Oak Park Ave.
HUMMON, IRVIN F., 3318 Oak Park Ave.
Igloe, Max Chas., 6812 Windsor Ave.
JOHNSON, RUSSELL CONRAD, 3428 Kenilworth Ave.; office, 3245 Oak Park Ave.
Kepner, Raymond Brandt
(See Chicago)
KORZENIEWSKI, JOS.
(See Cicero)
KOTALIK, FRANK JOS., 3224 Home Ave.; office, 6348 W. 26th St.
Krupka, John Miles
(See Cicero)
KVITEK, LOUIS CHAS.
(See Chicago)
LAWRENCE, WALTER A. (1007 Wesley Ave., Oak Park); office, 6400 W. 22d St.
Luce, Fredk. A.
(See Cicero)
LUHAN, JOS. ANTON, 2310 S. Euclid Ave.
MOE, CHESTER CHAS., 3201 Home Ave.; office, 6820 Windsor Ave.
MOLERE, C. S., 3503 Kenilworth Ave.
PATERA, FRANK JOSEPH
(See Chicago)
PERCIVAL, JOS. P., 1942 S. Scoville Ave.
PLZAK, LOUIS FRANK
(See Cicero)
REYNOLDS, EDWIN CHAS., 6746 W. 21st St.; office, 6805 W. 22d St.
RUSSELL, EDWIN PHILLIPS (Riverside); office 6820 Windsor Ave.
SAZAMA, JOHN JOS. (Riverside); office, 6207 W. 22d St.
Slavik, Edward Frank
(See Cicero)
SPIERING, ARTHUR KERN
(See Brookfield)
STEPHENS, VIRGIL RAY, 3121 Wisconsin Ave.; office, 6820 Windsor Ave.
Sterba, Jos. V.
(See Oak Park)
STOLFA, LADISLAV
(See Cicero)
Tetrev, Jaroslav
(See Chicago)
Thompson, Osmond Peter
(See Chicago)
Tomlinson, Wm. D., 6440 Sinclair Ave.
Tovarek, Jos. John, 6207 W. 22d St.
VYNALEK, WM. JOHN (Riverside); office, 6804 Windsor Ave. (30 N. Michigan Blvd., Chicago)
Wagner, Ben Elmer, 6804 Windsor Ave.
Wiese, Milton Arthur, 1905 S. Clarence Ave.
Wright, Preston E., 3520 Clinton Ave.; office, 3507 Oak Park Ave.

BLUE ISLAND, 16,534, COOK

AIKEN, RALPH CHAS., 12516 S. Elm St.; office, 13053 S. Western Ave.
BIRCHWOOD, EUGENE (7018 Creiger Ave., Chicago); office, 12755 Western Ave.
BYFORD, WM. HOLLAND, 12754 S. Maple Ave.
Chryanowski, Leo Alexander, St. Francis Hospital
DAVIES, CHAS. GEO., 2449 W. High St.
Diffenderfer, Ralph Ewing, 12524 S. Western Ave.
DOEPP, EDWARD A., 12941 S. Gregory St.
DOEPP, WM. CLARENCE, 12941 S. Gregory St.
HAWK, MORTIMER CAPSY, 12800 S. Maple Ave.
Hotchkin, Wm. F. (H), 13145 S. Western Ave.
JAMES, ROBT. LEE, 2418 W. York St.
JEZISIK, RAYMOND HENRY, 2556 W. Burr Oak Ave.; office, 13104 S. Western Ave.
KARST, FREDK. ARTHUR
(See Chicago)
Krueger, Frances McCord, not in practice; 432 Maple Ave.
LALLY, FRANK HUGHES, 2643 W. Burr Oak Ave.; office, 12947 S. Western Ave.
NEDRY, CLIVE JAMES (9200 Loomis St., Chicago); office, 12757 Western Ave.
PRONGER, EARLE JAMES WM., 2418 W. Burr Oak Ave.; office, 12918 S. Western Ave.
Roemisch, Albert John, not in practice—2336 W. Vermont St.
Runde, Henry Bernard, 12918 S. Western Ave.
Smith, Kenneth John, 2430 Prairie St.
SNIDER, ALVIN BRICKER, 2458 W. Walnut St.; office, 12950 S. Western Ave.
STADLE, WENDELL HARVEY, 12602 Maple Ave.; 12665 S. Western Ave.
VLOEDMAN, DERK ANDREW, 12152 Ann St.; office, 12700 Western Ave.

BROOKFIELD, 10,035, COOK

BELTING, JOHN THEODORE
Camp, Ella
SPIERING, ARTHUR KERN—also office (6756 W. 22d St., Berwyn)
Winsett, Clifford Vane

CALUMET CITY, 12,298, COOK

BASCOMB, MARSHALL ROYTON
Bradley, Harley A.
CLANCY, JAMES FRANCIS
(See Hammond, Ind.)
DIAMONDSTEIN, JOS., State Med. Assn.—796 State Line St.
ELLEDGE, RAY
(See Hammond, Ind.)
Feinsot, Irving, 604 State Line St.
FORSTER, NESLEN KELLIHER
(See Hammond, Ind.)
HOWARD, WM. HARRY
(See Hammond, Ind.)
Matushek, Wm. Anton
NADAI, ANDREW, 431 157th St.; office, 520 State Line St.
NEIER, OLIVER CLAY
(See Hammond, Ind.)
WOLK, MARCUS GERSH, 614 State Line St.

CHICAGO HEIGHTS, 22,321, COOK

Ballenger, Oscar L., 1608 Center Ave.; office, 197 E. 16th St.
BLIM, SPENCER PHELPS, 1645 Thorn St.; office, 25 Illinois St.
BLODGETT, PLINY RUSSELL, 61 W. Main St.; office, 1602 Otto Blvd.
Boyer, John S.
(See Crete)
Brown, Edgar O'Donnell, 1531 Otto Blvd.; office, 1618 Otto Blvd.
Cornet, Alphon L., 212 W. 16th St.; office, 78 Illinois St.
DALE, HARRY WILFORD, 241 W. 16th St.; office, 78 Illinois St.
DOBROW, MAX, 347 W. 16th Pl.; office, 228 E. 16th St.
DONALDSON, HENRY BARDWELL, 121 Country Club Rd.; office, 25 Illinois St.
Gorrell, Ralph Lufkin, Chicago Eye, Ear, Nose and Throat Hospital
GORRELL, TALBOT JOHN II. (Flossmoor); 45 E. 16th St.
HARMAN, IRA CHASE, 1540 Scott Ave.; office, 78 Illinois St.

HARNETT, DAVID LOUIS, 1515 Vincennes Ave.; office, 1602 Otto Blvd.
HAY, EDWARD F., 1524 Schilling Ave.; office, 5 Illinois St.
Kelly, Timothy Hubert, St. James Hospital
KLINGLER, ELLIS GISE, 149 W. 14th St.; office, 1602 Otto Blvd.
LaMarre, Victor Naxaire, 260 W. 15th Pl.; office, 78 Illinois St.
Long, Hugo, 1 Illinois St.
MARTIN, ERNEST CHAS (col.), 1441 Center Ave.; office, 229 E. 16th St.
McCRADIE, RAYMOND STEWART, 1416 Campbell Ave.; office, 22 Illinois St.
Medaris, Anna, 21 W. 21st St.
PANNENBORG, ARTHUR HERMAN, 1562 Schilling Ave.; office, 23 Illinois St.
Pike, Chas. Heyfield, 46 W. 15th St.; office, 23 Illinois St.
ROSINI, RENATO, 212 E. 16th St.
Sadlek, Lawrence Anthony, 1616 Otto Blvd.
SCARBOROUGH, CLAUDE MURPHY, 104 W. 15th St.; office, 24 Illinois St.
Spencer, Richard Vance, W. 14th St.; office, 1602 Otto Blvd.
STAPLETON, THOS. M., 7 E. 16th St.; office, 78 Illinois St.
STRAND, MARTIN, 1602 Euclid Ave.; office, 25 Illinois St.

CICERO, 66,602, COOK

ALSTROM, ERNEST FREDK., 1300 S. 49th Ave.
BARNES, JAMES R. E., 2133 S. 58th Ave.
BARTIZAL, JOHN FRANK (Riverside); office, 6001 W. 22d St.
Baumrucker, Geo. Otto, 5946 Cermak Rd.
Bennewitz, Anthony Hugo (2234 S. Oak Park Ave., Berwyn); office, 6147 W. 22d St.
Bloom, Chas. Robt., 2901 48th Ct.
CARLS, FREDK. GEO., 1331 S. 57th Ct.; office, 5607 Roosevelt Rd.
Clark, Floyd Marion, 1207 S. Cicero Ave.
DOWIAT, STANISLAUS ALFONS, 5147 W. 25th St.
FOUSER, CHESTER WATSON, 4900 W. 22d St.
Herman, Alfred Helmer, 2204 S. Austin Blvd.
HINN, OTTO WM. (1025 S. Austin Blvd., Chicago); office, 5203 W. 25th St.
Holecek, Frank, 1912 S. 61st Ave.
Hood, Addie Clark, not in practice—5222 W. 24th St.
HOOD, JACOB J., 5222 W. 24th St.; office, 5147 W. 22d St.
HOUGHTON, WALDO JEROME (Riverside); office, 6001 W. 26th St.
JIRKA, FRANK JOSEPH (See Chicago)
KLUZAK, JOHN FRANK, 1909 S. 58th Ave.; office, 5622 W. 22d St.
KOPTIK, GEO. (See Chicago)
KORZENIEWSKI, JOS. (2937 S. Maple Ave., Berwyn); office, 3000 S. 52d Ave.
KRAEMER, HORST CHAS. (See Chicago)
KROPACEK, JOHN ANTHONY (See Chicago)
Krupka, John Miles (3012 Maple Ave., Berwyn); office, 5802 W. 22d St.
Lloyd, Richard, 5302 25th Pl.
Luce, Fredk. A., 2646 S. Austin Blvd.; office (6243 W. 22d St., Berwyn)
Mann, Sigmund (424 S. Austin Blvd., Oak Park); office, 5146 W. 25th St.
MAURER, FRANK ROY, 1326 S. Austin Blvd.; office, 4800 W. 22d St.
McLallen, James Claude (Riverside); office, 5102 W. 29th Pl.
PECHOUS, BOHUMIL EDWARD, 1804 S. 59th Ct.; office, 5800 W. 22d St.
Pietroski, Jos. Conrad, 4926 W. 30th Pl.
PLZAK, LOUIS FRANK, 2435 S. 59th Ave.; office (2132 S. Oak Park Ave., Berwyn)
POKORNEY, FRANK J., 5147 W. 22d St.
Rembe, Boyd C., 2206 S. 50th St.
ROSENGARD, JEROME LIVINGSTON (See Chicago)
Russell, Lawrence Adolph, 3036 S. 52d Ave.
SHINGLMAN, JOS., 1638 S. 50th Ave.; office, 4930 W. 13th St.
SLADEK, BOHUMIL, 2517 60th Ct.
Slavik, Edward Frank (1912 S. Clarence Ave., Berwyn); office, 2137 S. Lombard Ave.
SMITH, JOHN COLVILLE (Riverside); office, 2227 S. 52d Ave.
STOLFA, LADISLAV (2401 Gunderson Ave., Berwyn); office, 2137 S. 62d Ave.
Tetrev, Henry (See Chicago)
Thieda, Arthur Alexander, 1301 S. 49th Ct.
TIERNEY, CHAS. JOS., 5132 W. 24th St.
TIMMER, WM. I., 1233 58th Ct.
TRAFELET, EMIL THEODORE (See Chicago)
VETTEN, CORNELIUS NICHOLAS, 6001 Roosevelt Rd.
Waligora, Stanley B. (H), 4907 W. 30th Pl.
WALTER, OTIS MONROE (See Chicago)
WARD, BENJ. FRANKLIN, 2300 S. Austin Blvd.
WARD, MILDRED DOUBECK, 2300 S. Austin Blvd.
WARNING, OTTO F. (See Chicago)
YERGER, CHAS. FRANCIS (See Chicago)
Zaletel, Rudolph Peter, 4830 W. 22d St.
ZELEZNY-BAUMRUCKER, OTILLIE (947 Williams St., River Forest); office, 5946 W. 22d St.

DES PLAINES, 8,798, COOK

Bernis, Chas.
Campbell, Wm. Roy
EARLE, CLARENCE A.
Fahey, Patrick Jos.
Fuhlbrigge, Arthur Alfred
HELLER, HENRY FREDK.
HOFFMAN, ERNEST HERMAN (See Chicago)
KRUEGER, JOHN H. F.
MIERS, EDW.
NAFFZIGER, ARMAND
PURVES, ARTHUR MATTHEW

DOLTON, 2,923, COOK

THOMSEN, CARL H.
WEIDNER, MORRIS ROBT., SR.
WEIDNER, MORRIS ROBT., JR.

ELMWOOD PARK (CHICAGO P. O.), 11,270, COOK

Bertaut, Clarence Jos. (See Chicago)
Davenport, Harold Alvin (See Chicago)
Gramer, Edward Phillip (See Chicago)
LEACH, JAMES JOS., 7700 Sunset Dr.; office, 12½ Elmwood Parkway
NEDZEL, ALEXANDER J. (See Chicago)
SUMMERS, CHAS. RAYMOND, 7753 Elmgrove Dr.; office, 7643 Belmont Ave.
Secunda, Herman Harold, 7209 W. Grand Ave.
TORPIN, RICHARD (See Chicago)
Varney, Franklin Thos.

EVANSTON, COOK

Abrams, Mark P. (842 Leland Ave., Chicago); office, 1819 Church St.
Alexander, Wm. Graham, 1430 Chicago Ave.; office, 636 Church St.
Allen, Thomas Dyer (See Chicago)
Andrews, Benjamin Franklin (See Chicago)
Atkinson, Arthur John (See Chicago)
Baird, Mary Brooks, 1707 Ridge Ave.; office, 1323 Hinman Ave.
Balderston, Steven Victor, 1205 Judson Ave.; office, 636 Church St.
Barber, Knowlton E. (See Chicago)
Barnham, Wm. Stanley, 1321 Oak Ave.; office, 636 Church St.
Barry, Geo. Fravel, 1640 Chicago Ave.
Basso, Peter (See Chicago)
Batko, John Benj. (See Chicago)
Beck, Estel Thorton, 1231 Emmerson St.
Beecher, Geo. Nevin (See Chicago)
Black, Arthur D. (See Chicago)
Blessing, Arthur, 2151 Gray Ave.; office, 636 Church St.
Bridegroom, Hugh G., 834 Seward St.; office, 636 Church St.
Brode, Williard D. (See Chicago)
Broman, Martin R. (See Chicago)
Brown, Seth Edwin, 718 Forest Ave.; office, 1604 Chicago Ave.
Brunet, Walter M. (See Chicago)
Bulkley, Nathan C., 728 Elmwood Ave.; office, 708 Church St.
Burcky, Fred. Wm., 725 Simpson St.; office, 636 Church St.
Burket, Walter C., 2123 Ridge Ave.; office, 636 Church St.

Burlingame, John H., 919 Washington St.
Burr, Albert H., 921 Elmwood Ave.
Butler, Isabella Maud G., 2306 Foster St.; office, 1918 Asbury Ave.
Canright, Harry Lee (See Chicago)
Carr, James Gray, 2306 Ridge Ave.; office, 636 Church St.
Case, Helena M., 629 Garrett Place
Case, James T. (See Chicago)
Christopher, Fred'k (See Chicago)
Clark, Dwight F., 1625 Hinman Ave.; office, 636 Church St.
Clark, Elbert (635 Blackthorn Rd., Winnetka); office, 636 Church St.
Clyde, Harry Edwards, 520 Main St.
Colwell, Arthur R. (See Chicago)
Coote, Frank T. (See Chicago)
Corbus, Budd C. (See Chicago)
Creely, Wilmer R. (See Chicago)
Crowley, Lawrence J., 708 Church St.
Curtis, Arthur H. (See Chicago)
Cutter, Irving S. (See Chicago)
Dakin, Frank C., 1134 Hinman Ave.
Danforth, Wm. Clark, 1620 Hinman Ave.; office, 636 Church St.
Darling, Charles G. (See Chicago)
David, Frank E. (See Chicago)
David, Vernon C. (See Chicago)
Davis, Carl B. (See Chicago)
de Takats, Geza (See Chicago)
Dick, Geo. F. (See Chicago)
Dick Gladys, Rowena Henry, Evanston Hospital
Dodd, Oscar, 1419 Chicago Ave.; office, 636 Church St.
Doerann, August Fred'k, 1230 Wesley Ave.
Drew, Henry C. (See Hines)
DuBois, Leo Charles (See Chicago)
Edmonds, Fred J., 723 Reba Place
Eiss, Dan'l W. (See Chicago)
Ewert, Earl E. (See Chicago)
Fitzgerald, Gerald J., 811 Dobson St.; office, 708 Church St.
Fowler, Edson B. (See Chicago)
Galloway, Charles E., Hubbard Woods; office, 636 Church St.
Galloway, Thos. C., 425 Grove St.; office, 636 Church St.
Geiger, Clyde J. (See Chicago)
Goltra, John N., 1233 Judson Ave.; office, 800 Davis St.
Goodsmith, Howard M. (See Chicago)
Greenwood, Glenn J., 708 Church St.
Gregory, Junius C., 2947 Grant St.; office, 529 Main St.
Grier, James P., 2752 Eastwood Ave.; office, 636 Church St.
Grier, Rob't M., 1714 Ashbury Ave.; office, 636 Church St.
Grulee, Clifford G. (See Chicago)
Hagan, Jasoph Lawrence (Kenilworth); office, 636 Church St.
Hartlett, Elvin M., 1242 Asbury Ave.; office, 636 Church St.
Haskins, Geo. Wm. (See Chicago)
Hathaway, Rob't J., 1710 Orington Ave.; office, 636 Church St.
Hatton, Edward H. (See Chicago)
Hauser, Emil D. (See Chicago)
Head, Jerom R. (See Chicago)
Hedberg, Davis L., 2129 Ridge Ave.; office, 2605 Prairie Ave.
Hedge, Harry M. (See Chicago)
Hilton, Etta S. R. (See Chicago)
Hobart, Marcus H., 621 Foster St.; office, 636 Church St.
Halloway, Howard J., 1317 Lyons Ave.; office, 636 Church St.
Hopkins, Clarence W. (See Chicago)
Horan, Francis P., 1023 Sheridan Rd.; office, 800 Davis St.
Huggins, Benj. H., 731 Colfax St.; office, 636 Church St.
Huggins, Rob't V., 636 Church St.
Hurlbut, Sherman R. (See Chicago)
Hynes, Edward J., 2213 Ridge Ave.; office, 529 Main St.
Jackson, Geo. Henry, Jr. (See Chicago)
Jackwith, Walter A. (See Chicago)
Kappelman, John A., 2027 Noyes Ave.
Kappes, Louise O., 2340 Hartray Ave.; office, 636 Church St.
Kelly, Earl D., 1017 Grove Ave.
Kennedy, Clarence E., 2217 Grant St.
Keyes, Albert B. (See Chicago)
Kirby, Frank B., 1608 Hinman Ave.
Klinetop, Arthur F. (See Chicago)
Lang, Sam'l J., 1414 Lincoln St.; office, 636 Church St.
Lassagne, Victor F., 718 Noyes St.
Lawson, Lawrence J., 2310 Ewing Ave.; office, 636 Church St.
Lenth, Vincent T. J. (See Chicago)
Lohr, Josephine W., 625 Noyes St.
Lonergan, Robert C., 422 Davis St.; office, 636 Church St.
Luessman, Harold Wm., 619 Ridge Ave.; office, 603 Main St.
Lussky, Herbert O., 2315 Lincolnwood Dr., office, 636 Church St.
Macdonald, Hugh, 8718 St. Louis Ave.; office, 636 Church St.
Machler, F. Patrick (See Chicago)
Mackinzie, Henry W. D. (856 Sheridan Rd., Winnetka); office, 636 Church St.
Maechtle, Everett W., 1509 Oak Ave.
Mars, Hartley F. (See Chicago)
Mars, Mary M., 735 Monroe St.
Mason, Lorne W., 2505 Prairie Ave.; office, 1900 Central St.
Mathews, Cora A., 636 Church St.
McBride, Linn F. (See Chicago)
McClure, Wm. B., 1406 Chicago Ave.; office, 636 Church St.
McConahy, Mary R., 3200 Grant St.
McEwen, Mary G., 1703 Chicago Ave.
McGill, Ernest C., 1021 Lee St.; office, 636 Church St.
McGuigan, Hugh A. (See Chicago)
Mebane, David C., 1713 Sherman Ave.
Maeier, Granthon, Jr. (See Chicago)
Meling, Nels Christian (See Chicago)
Merriam, John R., 562 Sheridan Sq.
Meyer, Harold I. (See Chicago)
Minsk, Lewis D. (See Chicago)
Mitchell, John M., 1456 Oak Ave., office, 636 Church St.
Mock, Harry E. (See Chicago)
Morrill, Warren P., 2536 Hurd Ave.
Mulder, Lenard, 2500 Lawndale St.; office, 636 Church St.
Musselman, Geo. H. (See Chicago)
Nelson, Tell (See Chicago)
Nesselrod, Jerrold P., 734 Noyes St.; office, 636 Church St.
Noble, Wm. L. (See Chicago)
O'Neil, Wm. E., 2044 Sheridan Rd.; office, 636 Church St.
Parks, Wm. Ross, 1835 Chicago Ave.; office, 636 Church St.
Patillo, Richard S. (See Chicago)
Peck, David B. (See Chicago)
Peck, Wesley H. (See Chicago)
Penn, Abelard R. (col.), 2620 Brown Ave.
Perry, Ethel B. (See Chicago)
Perry, Gentz, 2636 Central Park Ave.
Pietrowicz, Stephen R. (See Chicago)
Pitts, Howard (See Chicago)
Pollard, John W. H., 1014 Main St., office, 1806 Maple Ave.
Pollock, Lewis John (See Chicago)
Pope, Charles E. (See Chicago)
Pope, Mary Howe, 2017 Sherman Ave.
Porter, John L., 636 Church St.
Potts, Herbert A. (See Chicago)
Quint, Harold A., 2815 Hartzell St.; office, 636 Church St.
Rainey, Clarence W. (See Chicago)
Ranson, Stephen W. (See Chicago)
Rappaport, Benj., 2828 Harrison St.; office, 708 Church St.
Rayner, Herbert W. (See Chicago)
Rector, Frank L., 823 Case St.
Rhoads, Paul S., 2316 Park Pl.; office, 636 Church St.
Richter, Harry A. (400 Linden Ave., Wilmette); office, 636 Church St.
Roberts, Joseph F., Jr. (col.), 1836 Dodge Ave.
Roler, Albert H., 708 Church St.
Rudersdorf, Oscar L., 1205 Mulford St.; office, 603 Main St.
Sanner, James E. (See Chicago)
Sattler, Phillip, 801 Monroe St.
Sauer, Lewis W. (454 Sheridan Rd., Winnetka); office, 636 Church St.
Schacht, Fred'k W. (See Chicago)
Schaffer, David N. (See Chicago)
Schier, Anton R. (See Chicago)
Schneider, Philip F., 1570 Oak Ave.; office, 636 Church St.
Schrayer, Joseph, 800 Davis St.
Schultz, Oscar T., 825 Main St.; office, 355 Ridge Ave.
Scott, Russell A., 731 Lincoln St.; office, 636 Church St.
Seidner, Maurice L. (See Chicago)
Shaw, Noel G., office, 636 Church St.
Sherrill, Arthur L. (See Chicago)
Shutterly, Eugene E., 800 Davis St.
Smith, Philip H., 2133 Ridge Ave.; office, 636 Church St.
Smith, Wm. E., 1507 Oak Ave.
Snow, Lucelle H., 500 Sheridan Rd.; office, 636 Church St.
Soper, Gale R., 1704 Hinman Ave.; office, 636 Church St.
Sprague, Jon P. (See Chicago)
Stearns, Wm. G. (See Chicago)
Stearns, Wm. M. (See Chicago)
Steffens, George W., 2120 Lincoln St.; office, 636 Church St.
Stormont, Dan'l L., 9133 Ewing Ave.; office, 636 Church St.
Sutton, Don C. (See Chicago)
Swan, Charles J., 425 Grove St.; office, 636 Church St.
Swanson, Harry T., 2006 Harrison St.
Tatge, Edward G., 1216 Simpson St.; office, 636 Church St.
Thomas, G. R., 2145 Bennett Ave.
Thompson, W. Moore (See Chicago)
Todd, Charles J. (See Chicago)

Turnbull, Geo. C., 718 Noyes St.; office, 636 Church St.
Turner, Edgar C., 815 Judson Ave.; office, 636 Church St.
Tyson, Geo. F., 1038 Cleveland St.; office, 803 Chicago Ave.
Underhill, Marshall S., 2643 Orrington Ave.; office, 636 Church St.
Vermeren, John C. (See Chicago)
Wagoner, Guy L. (See Chicago)
Waner, Wm. L., 136 Clyde Ave.; office, 636 Church St.
Werth, Stephen S. (See Chicago)
Westenberger, Lorenz H. (See Chicago)
Whitefield, Geo. W., 1518 Hinman Ave.
Whitley, Wm. R., 1141 Judson Ave.; office, 636 Church St.
Williams, James L., 1319 Lincoln St.; office, 636 Church St.
Williamson, Earl W. (See Chicago)
Woley, Harry P. (See Chicago)
Woodyatt, Rollin T. (See Chicago)
Wooiston, John Wesley (See Chicago)
Wright, Charles G. (See Chicago)

EVERGREEN PARK

Beckering, Gerrit

FLOSSMOOR, 808, COOK

BLUE, ROBT B. (See Chicago)
BROWN, WM. LEE (See Chicago)
Gorrell, John Ellison (See Chicago Heights)
GORRELL, TALBOTT JOHN H. (See Chicago Heights)
Johnson, Chas. Henry (See Chicago)
MILLER, WM. (See Chicago)

FOREST PARK, 14,555, COOK

BAUMGARTNER, GEO. JOHN, 7320 W. Madison St.
DaCosta, Saml. N., 1026 Elgin Ave.
Faxon, Donald Eugene (See Hines)
Faxon, Ruby Marie Donaly (See Chicago)
JENKINS, HILERD ENNO (River Forest); office, 7406 Madison St.
KNOX, WM. BALMER (1122 Monroe Ave., River Forest); office, 7329 Madison St.
LAMB CHAS. W., 509 Hannah Ave.
MASSLOW, WM. C., 605 Hannah Ave.; office, 7509 Madison St.
McNEIL, ALBERT GORDON, (554 Jackson Ave., River Forest); office, 7444 Madison St.
NICHOLSON, GEO. PRICE (See Chicago)
OCHS, MILTON MARQUETTE (See Oak Park)
SODARO, JOS. CLARENCE (1427 N. Park Ave., River Forest); offices, 7348 Madison St. and (2004 Lake St., Melrose Park)

FRANKLIN PARK, 2,425, COOK

Dodge, Harold E.
FRYBARGER, CLARENCE EDWARD

GLENCOE, 6,295, COOK

Alcorn, Kent Archibald
BUEHLER, WM. EMMETT (See Chicago)
Cleveland, Geo. Henry, retired
GIFFORD, SANFORD ROBINSON (See Chicago)
HOFFMAN, LOUIS GEO. (See Chicago)
LOEWE, GILBERT MARTIN (See Winnetka)
MINDERHOUT, WILL JOHN, SR. (See Chicago)
ORCUTT, DWIGHT CHAPMAN (See Chicago)
Richburg, Louis Allan
Richburg, Welton Edwin
RUEHL, MAX C. (See Chicago)
SEARLE, CLAUDE HOWARD (See Chicago)
SWEENEY, JOHN STEELE, not in practice
Walsh, John Edward Lawrence, retired
WILEY, HARRY DUNLAP

GLENVIEW, 1,886, COOK

Hammett, Harold
Krumm, Theodore Herbert
Starkey, Geo. Goddard, not in practice

HARVEY, 16,374, COOK

ALEXANDER, CHAS. BURTON, 43 E. 154th St.; office, 112 E. 154th St.
ANDERSON, AUGUST REINHOLD, 15540 Center St.; office, 172 E. 154th St.
BLAIR, JOHN WM.
BRADLEY, CHAS. M.
FRASER, STUART EVANS, 15024 Vine Ave.; office, 172 E. 154th St.
GIESE, THEODORE, JR., 15430 Paulina St.; office, 160 E. 154th St.
Harris, Everett Albert, 168 E. 154th St.
HERCULES, CLARENCE ARAVILLE, 15402 Turlington Ave.; office, 128 E. 154th St.
Johnson, Brantley Mattauer, Ingalls Memorial Hospital
Kultus, Theodore, 138 E. 155th St.
Morse, McRome R., 15412 Center St.
O'Dell, Lester Ely, 15629 Lexington Ave.; office, 160 E. 154th St.
STEVENSON, BAYARD TAYLOR, 15232 Broadway
THURLIMANN, OTMAR, 15605 S. Myrtle Ave.; office, 133 E. 154th St.
Tuper, Harvey Willard
Winston, Woody Maurice

HOMEWOOD, 3,227, COOK

BECKER, SAML. WM. (See Chicago)
DILLON, ELMO EUGENE (See Chicago)
DOEPP, WM. L.
JANSON, CARL HELGE MAURITZ
SCUPHAM, GEO. WM. (See Chicago)
VAN WORMER, WELLINGTON CLARENCE — also office (Tinley Park)

KENILWORTH, 2,501, COOK

Brackin, Roy Ernest
CHILCOTT, ISRAEL HENRY (See Chicago)
HAGAN, JOS LAWRENCE (See Evanston)
Henson, John Geo.
Hollands, Augustus (See Chicago)
ROBBINS, JAMES MERLE
SOWERS, ALVA BOYD (See Chicago)
SPACH, AMUEL B. (See Chicago)
STOLP, RUFUS B. (See Wilmette)
Walker, Herbert (See Chicago)
WALKER, HASSELTINE STEPHENS (See Chicago)
Wilson, Arthur W.

LA GRANGE, 10,103, COOK

Ahrens, Edward Guy, 702 W. Burlington Ave.
Barclay, Robt. Donaldson (Argo)
BLUMENSTOCK, JULIUS, 80 S. 5th Ave.
Bowman, Dora Emma, not in practice R. D. 2
Brown, Wm. D. H. (See Chicago)
BUFORD, COLEMAN GRAVES (See Chicago)
CARR, CLARENCE THOS., 61 6th Ave.; office, 14 S. 5th Ave.
CARR, JESSE WASSON, 125 N. 5th Ave.; office, 14 S. 5th Ave.
CLARKE, JAMES CUNNINGHAM, 139 6th Ave.; office, 80 S. 5th Ave.
Costenbader, Clinton Franklin, 430 N. Waiola Ave.
DANIELSON, WILFORD ALDRICH (See Chicago)
DICK, PAUL GEOWEY (See Chicago)
EDWARDS, ROBT. WM., 61 N. Edgewood Ave.; office, 618 W. Burlington Ave.
EHRMANN, FRED. J. E. (See Chicago)
Friedemann, Otto Herman, 323 Calendar Ave.; office, 72 S. 5th Ave.
GARDINER, JOHN ALEXANDER, 403 N. Waiola Ave.; office, 23 W. Calendar Ave.
HARVEY, ANDREW MAGEE (See Chicago)
Haverstock, Horace Teal, 702 W. Burlington Ave.
HAWLEY, CLARK W. (See Chicago)
HOSPERS, ANTHONY JOHN (Western Springs)
HUNTER, CHAS. WARREN, 23 W. Calendar Ave.
Kellogg, Howard Butters, 702 W. Burlington Ave.
Kendall, John Lee, not in practice—1019 Cossitt Ave.
McCLURE, CHAS. FRANCIS (See Chicago)
McDougal, Thos. Cecil, 702 Burlington Ave.
Napieralski, Stella Henrietta (See Chicago)

Rounds, Clara Wood
Schwartz, Fannie Adele, 11 S. 5th Ave.
SECOR, EDW. THOMAS, 72 S. 5th Ave.
URSICH, JOS. EDWARD
(See Chicago)
Waddington, Algernon Henry
(See Chicago)
WATTERSON, WALTER HOBART, 337 Blackstone Ave.
Weber, Frank Schulte
Welford, Norma Turner, 505 S. Kensington Ave.; office, 80 S. 5th Ave.

LANSING, 3,378, COOK

SHAPMAN, JOHN VAN LIEW
Stocki, Anton (H)
VAN WORMER, FRANK BURTON
(See Harvey)

LEMONT, 2,582, COOK

Cauldwell, Earl Wm.
LUDWIG, JOHN B.

LYONS, 4,787, COOK

CHIASSON, MARCELLIN JEAN
Davis, Wm.
INGALLS, BERYL A.
Spangler, Edward Louis

MATTESON, 736, COOK

Rutz, Reinhold Albert

MAYWOOD, 25,829, COOK

Arnal, Paul John, 1603 S. 7th Ave.
BAKER, CHAS. W.
(See Chicago)
Bengtson, Bengt, Norman, 1603 S. 7th Ave.
BROSMAN, ELEANOR SOPHIA MASSLOW, not in practice—1418 S. 8th St.
CLEVELAND, ERNEST SCHUYLER
(See Chicago)
Cochems, Kenneth D., 825 S. 19th St.
COFFMAN, SAML. WOLGAMUTT, 408 S. 5th St.
Davis, Amy Reams, 812 N. 6th Ave.
Doctor, Wm. Raymond
(See Hines)
EDISON, ARTHUR ISADOR
(See Chicago)
Ensign, Chas. Francis
(See Hines)
FAIRFAX, AARON GRANT, 203 S. 13th Ave.
Ginnan, Edward James, 1210 S. 17th Ave.
Green, Louis Morris, 101 5th Ave.
Haslett, Percy Parker
(See Hines)
HORINE, ELMER S., 304 S. 5th Ave.
Howard, Richard Henry, Jr.
(See Chicago)
HUGHES, CHAS. WILFORD
(See Hines)
IGNATIUS, ARSHAVIR A.
(See Chicago)
JOSLYN, ARTHUR EVERETT (814 Williams St., River Forest); office, 1908 St. Charles Rd.
Laybourne, Ethel Mae, not in practice—Central Baptist Children's Home
LEMING, HOWELL ELIJAH
(See Hines)
Little, Adolphus Lamar
(See Hines)
LOVEJOY, WALTER C., 1008 N. 2d Ave.; office, 23 N. 5th Ave.
MATTER, ORSON EUGENE, 216 N. 3d Ave.
McFADDEN, HARRY WEBER
(See Hines)
McNamara, Adelaide Mary Zoeller, 503 Quincy St.
Miller, D. Evelyn, 1833 S. 2d Ave.
Moore, Aaron, 410 St. Charles Rd.
MURRAY, MEREDITH BYRNE, 406 Oak St.; office, 101 S. 5th Ave.
Myers, John Wesley
(See Hines)
Newell, Robt. C., 1433 S. 12th Ave.
Olson, Ernest Sivereen, 1002 S. 5th Ave.
Perry, Jos. H., 406 S. 17th Ave.
PETERS, JOHN, 23 N. 5th Ave.
POOLE, LEWIS ROY
(See Hines)
Reed, Ernest Corydon
(See Hines)
REEVES, DWIGHT COLEMAN 917 S. 5th Ave.
REYNOLDS, ROBT. LAWRENCE, 510 N. 3d Ave.; office, 23 N. 5th Ave.
SCOTT, WM. FRED
(See Oak Park)
SMITH, HAROLD EDWARD, 1446 S. 13th Ave.; office, 101 S. 5th Ave.
Stuart, Carroll W.
(See Chicago)
Taylor, Geo. Gordon
(See Chicago)
THOMPSON-KOPPENAAL, ELIZABETH ELLEN, 2036 S. 11th Ave.
WALLINGSFORD, WM. JEWELL, 305 N. 4th Ave.; office (Edward Hines, Jr., Vet. Hospital, Hines)
Weinberg, Chas. Morse, 518 S. 5th Ave.
Wells, Thos.
(See Hines)
WILEY, CHAS. E., 1008 N. 2d Ave.; office, 1003 S. 17th Ave.

MELROSE PARK, 10,741, COOK

BRUST, EDMUND GEO., 161 Broadway
CARSTENS, ERNST HERMAN C., 161 Broadway
Castro, Cosimo (818 S. Marshfield Ave., Chicago); office, 161 Broadway
KIONKA, PAUL B.
RENDTORFF, WALTER (1200 S. 4th Ave., Maywood); office, 10 Broadway
SCOTT, WM. FRED
(See Oak Park)
SHOCKEY, GEO. CURTIS, 128 Broadway
Vertuno, Louis Abbott (801 Wisconsin Ave., Oak Park); office, 1912 Lake St.

MORTON GROVE, 1,974, COOK

Sarkissian, Sarkis Der
(See Chicago)

MOUNT PROSPECT, 1,225, COOK

Buck, Alfred Laflin
KOESTER, LOUISE
WOLFARTH, ALFRED

NILES CENTER, 5,007, COOK

JONES, ROBT. MOORE
(See Chicago)
KLEHM, AMELIA LOUISE
Line, Eva Jane
Mussil, Julius Jos.
SEGUIN, ARTHUR CLEMENT
SIMONS, JAMES DANL.
(See Highland Park)
SINTZEL, RUDOLPH V.

NORTHBROOK, 1,193, COOK

Benz, Henry Andrew, not in practice
REMBE, ROLAND FRED
Sintzel, Louis J.

OAK LAWN, 2,045, COOK

Gasteyer, Theodore Hall
SCHUSSLER, EDWARD G.

OAK PARK, 63,982, COOK

Number of Physicians, 276
Adams, Mary F., not in practice—1027 S. Highland Ave.
ADAMS, NATHANIEL HOLDER
(See Chicago)
Ahlberg, Fanny M., 127 N. Oak Park Ave.
AHSTROM, JAMES PETER
(See Chicago)
ALLEN, ARTHUR VINCENT
(See Chicago)
ANDERSON, KENNING MEREDITH
(See Chicago)
ANDERSON, EARVYE HARRY
(See Chicago)
Atkinson, Thos. Geo.
(See Chicago)
Barss, Jos. Ernest, 505 S. Oak Park Ave.
BEARD, HALLARD
(See Chicago)
BEEBE, LESLIE W., 401 Forest Ave.; office, 715 Lake St.
BELLIZZI, ALFREDO
(See Chicago)
BELZIG, FREDK. CARL
(See Chicago)
BERARD, HENRY WM.
(See Chicago)
Bergen, Marie Dorothea Gras, 816 S. Harvey Ave.
BERGER, JOHN MILTON
(See Chicago)
BEVERLY, BERT IRA
(See Chicago)
BLOUNT, ANNA ELLSWORTH, 146 S. Oak Park Ave.
Bolduc, Jos. O., 1119 Clarence Ave.
Bowler, Vincent Brendan
(See Chicago)
BOWMAN, CURTIS BUFORD
(See Chicago)
BOYD, JOHN RICHARD, 12 Washington Blvd.; office, 840 S. Oak Park Ave.
BREDLAU, ERNEST AUGUST
(See Chicago)

BREWER, LEWIS RAWLINGS
(See Chicago)
BRIANZA, ARTHUR MARIO
(See Chicago)
Brown, Oran Alfred, 644 S. Grove Ave.
Brown, Saml. Ross
(See Hines)
BROWN, WM. CULP
(See Chicago)
BURROUGHS, WALLACE McMURRAY (See Chicago)
BUSBY, JOHN AMBROSE CLARK, 839 Lake St.; office, 715 Lake St.
BUTLER, CRAIG DUNN, 1011 N. Woodbine Ave.; office, 715 Lake St.
BUTT, WM. JOS., 432 N. Austin Blvd.
CAMPBELL, WM. SCOTT
(See Chicago)
Carey, Clair Martin, 1142 Chicago Ave.
Caron, Walter
(See Chicago)
Carpenter, Geo. Henry
(See Chicago)
Chandler, Simon B.
(See Chicago)
Chauvet, Frank
(See Chicago)
CHOUINARD, CLARENCE ROBERT
(See Chicago)
CLARK, FLOYD MARION
(See Chicago)
CLAYPOOL, BLAINE WILSON
(See Chicago)
Code, Walter Austin, 427 Washington Blvd.
COHLER, LAZARUS
(See Cicero)
COLE, LUCIUS (1117 Lathrop Ave., River Forest); office, 715 Lake St.
Coley, Lucius A. (E), 601 S. Taylor Ave.
CONGER, GUY PARKE (558 Keystone Ave., River Forest); office, 120 N. Oak Park Ave.
CONGER, SIDNEY BEESON
(See Chicago)
CONVERSE, WALLACE COX
(See Chicago)
COOK, CARROLL EUGENE
(See Chicago)
Cooper, Arthur Reuben, 315 Home Ave.
Copeland, Wm. Henry, 1033 Ontario St.
CORBETT, MITCHELL SAM'L
(See Chicago)
COX, JAMES FRANCIS
(See Chicago)
CRANK, ALEXANDER C.
(See Hines)
Croft, Albert Jos.
(See Chicago)
Crowley, Wm. Simon
(See Chicago)
CUTRERA, PETER
(See Chicago)
DARO, AUGUST FIORA
(See Chicago)
Degan, James T., 152 LeMoyne Parkway
DICOSOLA, RALPH MICHAEL, 922 Ontario St.; office, 137 Marion St.
DOESCHER, PAUL FREDK.
(See Chicago)
DOOLEY, HARRY JOS.
(See Chicago)
DORSEY, HUGH P., 715 Lake St.
DOUGHERTY, CLIFFORD LESTER
(See Chicago)
Dovey, Edward Grovenor
(See Hines)
DRENNAN, FRED MILLER
(See Chicago)
DRURY, RAY C.
(See Chicago)
DVORAK-THEOBALD, GEORGIANA M., 839 Lake St.; office, 715 Lake St.
Edmunds, Clarence Harold, 216 S. Austin Blvd.
EGAN, EDWARD MICHAEL
(See Chicago)
Egan, Wm. Bernard, LeMoyne Parkway
Ehlers, Fredk. Ferdinand, 116 N. Kenilworth Ave.
EHRMANN, EVELINA WILHELMINA (See Chicago)
FALETTI, ANTHONY JOHN, 1145 Madison St.
FANTUS, BERNARD
(See Chicago)
FARINA, JOS. J.
(See Chicago)
FISHER, BERTHA GAE, 416 N. Austin Blvd.
FISK, WM. BURNHAM, 175 Linden Ave.
FITZGERALD, JAMES MERLIN
(See Chicago)
FOTY, SAVIOUR R., 920 S. Austin Blvd.
FOWLER, EARLE BLOODGOOD
(See Chicago)
FOX, NICHOLAS ISRAEL
(See Chicago)
FOX, PAUL CHRISTOPHER, 5 Elizabeth Ct.; office, 715 Lake St.
Franklin, Chas. Edward (501 N. Central Ave.; Chicago); office, 715 Lake St.
FRENCH, ROBT. LOYAL, 411 N. Scoville Ave.; office, 715 Lake St.
FUNKHOUSER, OSCAR BRUNK
(See Chicago)
Gallagher, Michael Leo
(See Hines)
Gawne, Chas. Bernard, 3 Madison St.
GESSING, JAMES ANDERSON, 321 N. Elmwood Ave
GOEBEL, RUSSELL WALTER (1134 N. Harlem Ave., River Forest); office, 1011 W. Lake St.
GOLDEN, HAROLD MILLER
(See Chicago)
Good, Palmer Wagstaff
(See Chicago)
GOOD, ROBERT HOSEA
(See Chicago)
Gordon, Lourdes Bernard, West Suburban Hospital
GRAVES, NATHANIEL A.
(See Chicago)
GRAVES, PHILIP ABERNETHY, 129 Clinton Ave.; office, 1011 Lake St.
GRAY, WM. KARG
(See Chicago)
Green, Geo. Noel
(See Chicago)
GRISSOM, RAYMOND FRANCIS (347 Keystone Ave., River Forest); office, 715 Lake St.
GROTH, WM. F.
(See Chicago)
HADDEN, SHIRLEY LOUIS
(See Chicago)
HAEFFNER, ALBERT WM.
(See Chicago)
HALEY, CLARENCE OTTO
(See Chicago)
HALL, ALICE KASSIE
(See Chicago)
HARGER, JOHN ROSS
(See Chicago)
Harker, M. P. Lyla, 1202 Woodbine Ave.
Harper, Mary McKibbin, not in practice—1041 Pleasant St.
HARWOOD, ROBT. SAML., 831 S. Kenilworth Ave.; office, 831 S. Oak Park Ave.
HAWKINS, JOHN RUSKIN, 635 N. Elmwood Ave.; office, 715 Lake St.
HAWKINSON, OSCAR
(See Chicago)
HAYES, DANL. FRANCIS
(See Chicago)
Hayward, Martha, not in practice—320 S. Maple Ave.
Heald, John Orland, West Suburban Hospital
Hemphill, Robt. Begg, 429 N. Marion St.
Hill, Lewis Rowland
(See Chicago)
Hill, Harold Herrin, 1011 Lake St.
Hoeksema, Henry, West Suburban Hospital.
HOFFMAN, COLEMAN L., 53 Washington Blvd.
HOLDEN, DAVID
(See Chicago)
HOLMES, EDWARD M.
(See Chicago)
HOUSTON, JAMES ALEXANDER
(See Chicago)
HOWSER, REID OWEN, 304 N. Lombard Ave.; office, 715 Lake St.
HULBERT, HAROLD STACEY
(See Chicago)
JACK, JOHN BARNES
(See Chicago)
JAMES, WM. ALFRED
(See Chicago)
JIRSA, OTTO JOHN
(See Chicago)
JOHNSON, SILAS CURTIS
(See Chicago)
JONES, CARL FISKE
(See Chicago)
JONES, EARNEST EUGENE, 1141 Edmer Ave.; office, 1011 Lake St.
JONES, MARTIN D., 647 N. Euclid Ave.; office, 715 Lake St.
Jones, Morris Hunter, Jr., 1 Chicago Ave.
KAPLAN, DAVID, 340 S. Maple Ave.; office, Vet. Bureau, Hines
KENDALL, WM. EUGENE, 228 S. Ridgeland Ave.
Kergerreis, Roy, 311 N. Oak Park Ave.
KERR, ELLIS KIRK, 820 N. Oak Park Ave.; office, 715 Lake St.
KETTLESTRINGS, FRED WILLIS, (Glen Ellyn); office, 715 Lake St.
Kidd, Wm. Edwin, 326 S. Oak Park Ave.

Kingsley, Danl. Milton, 1142 S. Kenilworth Ave.

KOUCKL, JOHN DOUGLAS
(See Chicago)

KRAFT, JACOB CARL
(See Chicago)

KRASA, JOHN CHAS. MATTHEW
(See Chicago)

LAMPERT, MAX THALER
(See Chicago)

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Latimer, Milton Jay
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LAWRENCE, WALTER A.
(See Berwyn)

LEAF, HUGH MACK
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LE BOY, WM. LEWIS
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Meacham, Wm. Chas.
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Mix, Harry Collier, 524 S. Wisconsin Ave.

MIZE, HARLAN EDGAR
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MONACO, ATTILIO
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Morrow, Alvin Reid
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Movius, Alfred Henry, Jr.

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NELSON, OLE C.
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NERGER, VERNON DURWARD
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NICOLL, HOMER KING
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NORDHOLZ, WM. C.
(See Chicago)

NORTELL, JOS. LAWRENCE
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OBERHELMAN, HARRY ALVIN
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OLIVER, PAUL (737 Keystone Ave., River Forest); office, 715 Lake St.

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PROBST, DUANE WILLARD
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QUIGLEY, WM. JOSEPH
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RAYCROFT, WM. BERNARD
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SCHROEDER, PAUL LEWIS
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SILER, CHAS. ARTHUR, 715 Lake St.

Siler, Marion Louise Pierce, 524 Forest Ave.

SIMA, CHAS. ARTHUR
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Smith, Chas. Otis, 747 Clarence Ave.; office, 1011 Lake St.

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SMITH, HERSCHEL I.
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SOLEM, GEO. OLIVER
(See Chicago)

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STEPHENS, HARRY HART
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VALENTINE, JAMES ANDRES
(See Chicago)
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Vertuno, Louis Abbott
(See Melrose Park)
VOLINI, ITALO FREDK.
(See Chicago)
VON DER HEYDT, ROBT.
(See Chicago)
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(See Chicago)
WALTON, BERNARD CLAIBORNE, 627 N. Ridgeland Ave.
WANDERER, ARTHUR EMIL AUGUST
(See Chicago)
WARFIELD, CHESTER H.
(See Chicago)
WATERMAN, WALLACE M.
(See Chicago)
Webb, Arthur Sterling
(See Warrenville)
West, Albert M.
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ORLAND PARK, 571, COOK

SCHUSSLER, WALTER RICHARD
(See Chicago)

PALATINE, 2,118, COOK

Clayton, James A. Garfield
Renner, John J.
Schirding, Wm. P.
SCHMIDTKE, JOHN CALVIN
Starck, Carl Adam
(See Chicago)

PALOS PARK, 456, COOK

AVERY, FREDK. T.
McQUARRIE, JOHN K.
(See Chicago)
PORTER, ROBERT HENRY, Jr.
(See Chicago)

PARK RIDGE, 10,417, COOK

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CONLEY, THOS. EDWARD, 404 Ashland Ave.; office, 3 S. Prospect Ave.
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Fricke, Fredk. H.
FRIEND, WM. MARSHALL, 218 Courtland Ave.
GAMBLE, RICHARD COTTER
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HODES, JACOB ELLIS
(See Chicago)
Mikkelsen, Niels Victor
(See Chicago)
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Riser, Roy Otis
SARGENT, BENJ. LEROY
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Stevens, Karl Ivan
(See Chicago)
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RIVER FOREST (OAK PARK P. O.), 8,829, COOK

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(See Chicago)
COLE, LUCIUS
(See Oak Park)
CONGER, GUY PARKE
(See Oak Park)
CRONIN, JOHN JAMES
(See Chicago)
CURL, GEO. RUSSELL
(See Chicago)
DAVISON, CHAS.
(See Chicago)
Davison, Chas. Marshall
(See Chicago)
EVANS, JOHN HENRY
(See Chicago)
FALLS, FREDK. HOWARD
(See Chicago)
GOEBEL, RUSSELL WALTER
(See Oak Park)
GOOD, ROBT. HOSEA
(See Chicago)
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Handke, Otto K., 820 Monroe Ave.
JACOBS, EUGENE CORYELL, 827 Forest Ave.
JENKINS, HILERD ENNO
(See Forest Park)
JONES, CARL FISKE
(See Chicago)
JOSLYN, ARTHUR EVERETT
(See Maywood)
KNOX, WM. BALMER
(See Forest Park)
LANG, JOHN MICHAEL
(See Chicago)
Lyon, John Bates
McNEIL, ALBERT GORDON
(See Forest Park)
OLDFIELD, RALEIGH CHAS.
(See Oak Park)
OLIVER, PAUL
(See Oak Park)
PAGANO, RALPH
(See Chicago)
PARMELEE, ARTHUR HAWLEY
(See Oak Park)
PHELPS, LUCIUS BELDING
(See Chicago)
POST, GEO. WASHINGTON, Jr.
(See Chicago)
ROSE, CAMERON ALFRED
(See Oak Park)
SAVAGE, ROBT. GARFIELD
(See Oak Park)
SCHAARE, WM. F.
(See Chicago)
SCHROEDER, GEO. HENRY
(See Chicago)
SCHULTZ, LOUIS
(See Chicago)
SCHULTZ, LOUIS WM.
(See Chicago)
SELBY, FREDK. S.
(See Chicago)
SIMMONDS, WALTER EDWARD
(See Chicago)
SODARO, JOS. CLARENCE
(See Forest Park)
TIMBLIN, WM. STANLEY
(See Chicago)
WARDEN, RALPH HERBERT
(See Chicago)
WAY, HENRY JOS.
(See Chicago)
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ZELEZNY-BAUMRUCKER, OTILLIE
(See Cicero)

RIVER GROVE, 2,741, COOK

KIRLIN, DENNIS JOS.
(See Chicago)

RIVERSIDE, 6,670, COOK

BARNETT, GEO. ALVIN
BARTIZAL, JOHN FRANK
(See Cicero)
Becht, Frank Christian
(See Berwyn)
Becker, Louis Dunsten
(See Berwyn)
BISHOP, ADOLPH EDWARD
(See Berwyn)
BOUSA, BOHUSLAV
(See Chicago)
CARR, EDSON WORTH
(See Chicago)
DAVIES, LEORA ENSIGN
(See Chicago)
FANNING, DAVID JAMES
(See Chicago)
Forbrich, Jos. Andrew
FULLER, SPENCER SAM
GUNNAR, HERMAN PETRUS
(See Chicago)
HENSSLER, OTTO W.
(See Chicago)
HOUGHTON, WALDO JEROME
(See Cicero)
Jansey, Felix Malcom
(See Chicago)
JAROS, JOS. FRANCIS
(See Chicago)
JONES, HARRY MATTHEW
(See Chicago)
MACKOWIAK, FELIX A.
(See Chicago)
McLallen, James Claude
(See Cicero)
NOVAK, FRANK JOHN, Sr.
(See Chicago)
OSTROWSKI, FLORIAN GEO., 273 Blackhawk Rd.
Ramsay, Blaine Lowell
(See Chicago)
RIDER, DEAN LOLLER
Rider, Jeannette Leszczynski
RUSSELL, EDWIN PHILLIPS
(See Berwyn)
SAZAMA, JOHN JOS.
(See Berwyn)
Shimberg, Mandell
SMITH, JOHN COLVILLE
(See Cicero)
VYNALEK, WM. JOHN
(See Berwyn)
WILLIAMS, WM. ROBT.

SOUTH HOLLAND, 1,873, COOK

WALVOORD, GERRIT WM.

STEGER, 2,985, WILL

Moore, Mary Thair Courtney Brown
Wickensimer, John B.

STICKNEY (ARGO P. O.), 2,005, COOK

DRUNASKY, HARFORD LEON
(See Chicago)

THORNTON, 1,012, COOK

OLIVER, NELSON EUGENE

TINLEY PARK, °23, COOK

CARMICHAEL, ROBT. HENRY
VAN WORMER, WELLINGTON CLARENCE
(See Homewood)

WESTERN SPRINGS, 3,89, COOK

GERTY, FRANCIS JOS.
(See Chicago)
Hansen, Stephen John
HOSPERS, ANTHONY JOHN
(See LaGrange)
NAUMAN, RALPH WALDO
ROWELL, LAWRENCE W.
(See Chicago)
Taylor, Amelia Lucia W.

WHEELING, 467, COOK

LARSON, EDWARD L.

WILMETTE, 15,233, COOK

AXELSON, JOHN M.
(See Chicago)
Bagdadi, Zia Mahsut
(See Chicago)
BARKER, MILTON REED, 730 Central Ave.
BAUTH, CARL OTTO
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Beecher, Saml. E.
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BERTLING, ADOLPHUS EDMUND
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BROWER, DANL. ROBERTS
(See Chicago)
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Conley, Minnie Agnes Hinch
CRILE, DENNIS RIDER WOOD
(See Chicago)
Cummiskey, Edward F.
(See Chicago)
Cunningham, Danl. Robt.
(See Chicago)
DAVIS, DAVID JOHN
(See Chicago)
deBERE, CLEMENT JOS.
(See Chicago)
EARLE, FRANK BRECKENRIDGE
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HESS, EDWARD FREDK.
(See Chicago)
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KARST, FREDK. AUGUST
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MANN, WM. ALFRED, SR.
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MANN, WM. ALFRED, JR.
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Mitchell, Bryan Lee, 360 Gregory Ave.; office, 1159 Wilmette Ave.
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RICHTER, HARRY ALLEN
(See Evanston)
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SMITH, CHAS. GEO., 1325 Greenwood Ave.; office, 1159 Wilmette Ave.
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SNYDER, M. VERNON
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THOMAS, EARLE H.
(See Chicago)
WAUGH, JOHN FRANKLIN
(See Chicago)
WEAVER, GEO. HOWITT
(See Chicago)
WEGNER, EDWIN ALBERT
(See Chicago)
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WESCOTT, VIRGIL
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WINNETKA, 12,166, COOK

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ASHBY, JOHN SHERMAN
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BELLENGER, HOWARD CHAS.
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BRENNEMANN, JOS.
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BROWN, EDWARD VAIL LAPHAM
(See Chicago)

BROWN, RALPH CRISSMAN
(See Chicago)
CARNCROSS, HELEN
(See Chicago)
CLARK, ELBERT
(See Evanston)
CROWDER, THOS. REID
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Garner, Katherine Rogers, not in practice—804 Prospect Ave.
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(See Glencoe)
GREELEY, PAUL WEBB, 545 Lincoln Ave.
GUNN, FRANCIS DOWDEN
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HAMILL, RALPH C.
(See Chicago)
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JACKSON, HARRY
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JACOBS, CHAS. MAYO
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RAMSER, HAROLD ALFRED
(See Chicago)
Robertson, Helen Evans, 334 Fairview Ave.
SAUER, LOUIS WENDLIN
(See Evanston)
SCHACHT, FREDK. WM.
(See Chicago)
SCHIPFER, LLYOD ALBERT
(See Chicago)
SCHNEIDER, CARL OSCAR
(See Chicago)
SENEAR, FRANCIS EUGENE
(See Chicago)
STARR, MERRITT PAUL
(See Chicago)
TAYLOR, LILLIAN ETHEL
(See Chicago)
Trowbridge, Edward G.
(See Chicago)
True, Katherine Knight, 418 Forest St; office, 833 Elm St.
Wales, Albert H., 896 Linden Ave.; office, 522 Center St.
Zeit, Fredk. Robt.
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AUXILIARY NOTES

Reading "The Duties and Responsibilities of the State Organization Chairman" compiled in our handbook I found this important suggestion "To stimulate organization the chairman must understand the purpose of the Auxiliary," and may I add not only understand the purpose but try to carry the message of the purpose and importance of the Auxiliary to each and every Doctor's wife.

To us, the Doctors' wives, the Auxiliary should not be just another organization but should be the background for all our club and public activities, "reaching out into every phase of organization work." Our President of the Illinois State Medical Society said in a letter to the Auxiliary: "The public has become health-minded, eager for information concerning all health matters. The Woman's Auxiliary finds here an important function. The Doctor's wife should be able to take her place in all groups dealing with health and welfare work and educate herself so as to guide the plans of these organizations."

The Auxiliary has programs of various activities. Perhaps in one county the legislative work will appeal; in another, the social contacts will seem of more importance. Again, the welfare work, such as assisting in conducting and carrying on the clinics for handicapped children, aiding the Society for the Prevention of Blindness and many other projects will interest the members. Our State Society, through its Scientific and Educational Service, is doing such splendid work throughout the state along these lines, and the public is responding. This is certainly a definite place for the Auxiliary to carry on with the Doctor. The Public Relations program offers a wide field and the Chairman has opened the year's work with a splendidly successful meeting. In the larger cities the study of the economic problems, especially the evils of state medicine and of unauthorized free clinics, will be of interest. All of these matters are worthy of effort and the question "What shall we do with an Auxiliary in our county?" is answered again and again.

Each county is an important part of the Auxiliary. Each group, carrying on, increases the value and efficiency of the whole unit. The county Auxiliary may be organized to suit its needs. It is not necessary to have a complicated organization, and in many districts it may be wise to combine several counties in one unit. If we have had a part in organizing our county, we have done a splendid thing for organized medicine.

The Auxiliary is proving itself a liaison between the medical profession and the public. The importance of this connection will be appreciated by the Doctor if he knows that he has an efficient and educated ally in the Auxiliary member who, guided by the Advisory Board of the Medical Society, takes her place in organization work. The efficiency of our own officers will be greatly increased if they assume their positions secure in the thought that a large group, well organized and efficient, is back of them, capable and willing to carry on their plans for each year. This is your work, our work, and we ask your whole-hearted cooperation. Our Organization Committee, composed of a Chairman and the Councilors from the various districts, has outlined an ambitious program for the year, the success of which lies entirely with all the members. The cooperation of every Doctor's wife is necessary. We ask your help in contacting every Doctor's wife, and we feel sure that she will feel an obligation to join the list of informed women interested in the problems of the Doctor and of organized medicine.

VERA M. KREUSCHER,
MRS. PHILIP H. KREUSCHER,
Chairman of Organization.

Board Meeting. The next meeting of the Board of the Woman's Auxiliary to the Illinois State Medical Society will be held on Saturday, November 18 at 10:00 A. M. at the Stevens Hotel, Chicago. All members of the Board are urged to attend this business meeting.

Dr. Read's Lecture. According to the announcement in the October number of the JOURNAL the first public meeting, sponsored by the Woman's Auxiliary to the Illinois State Medical Society and the Woman's Auxiliary to the Chicago Medical Society was held in the auditorium of the Illinois Host House, A Century of Progress on October 11. Much interest was shown in this meeting. Dr. Charles F. Read, Managing Officer, Elgin State Hospital was the speaker. Dr. Read's address, "Mental Health in the Home" appears in this issue of the JOURNAL.

Following the lecture a luncheon was held in the Trustees Lounge, the Hall of Science. On this occasion it was a great pleasure to the physicians' wives in Chicago to welcome many distinguished guests from out of the city.

Cook County Notes. The first meeting of the Woman's Auxiliary to the Chicago Medical Society was held on Wednesday, October 4, in the Medical and Dental Arts Club, Chicago. The speakers were Dr. Austin A. Hayden, President of the Chicago Medical Society; Dr. Philip H. Kreuscher, President of the Illinois State Medical Society and Dr. M. T. Maceachern, Director of Hospital Service American College of Surgeons who showed "Good Hospital Care," a motion picture with sound.

At the luncheon, preceding the program, Mrs. Eben J. Carey, President of the Wisconsin State Auxiliary, was the guest of honor and extended greetings from our sister state.

St. Clair County Auxiliary. A review of the magazine, "Hygeia," was given at the October 8 meeting of the St. Clair County Medical Society Auxiliary, held in St. Mary's Hospital auditorium, East St. Louis. Articles were reviewed by Mrs. R. F. Stanton, Mrs. Harvey S. Smith and Mrs. H. H. Hurd. Mrs. I. L. Foulon, the new president, presided. The program was in charge of Mrs. H. H. Hurd, county and state chairman of "Hygeia." As a feature of the evening, Mrs. Karl Schatz gave several vocal selections accompanied by her daughter. Following their meeting, members of the Medical Society joined the auxiliary members.

Vermilion County Auxiliary. The Vermilion County Medical Society entertained at an out-of-door picnic supper Tuesday evening, October 3, in the gardens at the home of Dr. and Mrs. E. G. C. Williams. It was in the nature of a Hallowe'en party. A program of unique games were played following the serving of supper. The committee on arrangements and entertainment for the party included Mrs. E. G. C. Williams, Mrs. George Potter, Mrs. C. L. Bennett, Mrs. J. Garlitz, Mrs. E. B. Jewell, Mrs. D. C. Good and Mrs. D .P. Caldwell.

FILMS FOR MEDICAL MEETINGS

Mead Johnson & Company through its Chicago office, 308 West Washington Street, will be glad to arrange to show the following 16 mm. films to medical societies, medical students, hospital groups, etc. No charge is made for this service which includes a projector, screen and an attendant.

GROUP ONE

1. Cod Liver Oil
2. Activities in the Mead Johnson Research Laboratory (8 reels):

A. Vitamin Assay Technique—Laboratory and Purification of Diet.

B. Vitamin Assay Technique—Vitamins A, B and C.

C. Vitamin Assay Technique—Assay of Ergosterol and Vitamin D.

D. The Chemical Laboratory, Mead Johnson & Company.

E. A Study in Mineralization.

F. Manufacture of Ergosterol and Vitamin D.

G. Sanitary Control of Dextri-Maltose Manufacture (2 reels).

3. Preparation of the Formula.
4. Differential Diagnosis of Vomiting in Children (2 reels).

GROUP TWO

1. Breast Feeding.
2. Breech Extraction (2 reels).
3. Restoration of Function in Cases of Harelip and Cleft Palate.
4. Miscellaneous Pediatric Cases.
5. Pediatric Nursing Technique.
6. Physical Examination of the Infant.
7. Some Diagnostic and Therapeutic Procedures.
8. Pediatric Anomalies.

GROUP THREE

1. Cervical Rib.
2. Elbow Surgery.
3. Experimental Studies in Blood Coagulation (2 reels)—including tonsillectomy, adenoidectomy, episiotomy and circumcision.
4. Gall Bladder (2 reels).
5. Gastric Ulcer.
6. Goiter Surgery.
7. Hysterectomy (2 reels).
8. Knee Surgery.
9. Bone Grafting in the Lumbosacral Spine.
10. Bone Grafting in the Lumbar Spine.
11. Plastic Surgery (2 reels).
12. Breast Surgery (2 reels).

Four more films are available on Perineorrhaphy showing spontaneous breech delivery and occiput posterior, the secondary laceration.

EDUCATIONAL COMMITTEE

October, 1933

SPEAKERS' BUREAU

7,165—People heard talks given by 46 physicians scheduled through the Educational Committee. These appointments represented such groups as district meetings of women's clubs, Century of Progress, Farmers Institutes, Women's Clubs, Teachers Institutes, College Clubs, Parent Teacher Associations, Rotary Clubs, Mothers' Clubs, High School assemblies, Colleges, Nurses Associations.

PRESS SERVICE

949—Releases to Illinois newspapers.

480—Regular press service.

21—Monthly service to newspapers.

97—Southern Illinois papers announcing postgraduate course in Pediatrics at Benton.

55—Newspapers, re meeting Fulton County Medical Society.

118—Newspapers, re meeting La Salle County Medical Society.

48—Newspapers, announcing clinic for handicapped children, sponsored by Whiteside County Medical Society.

130—Southern Illinois newspapers concerning Annual Meeting of the Southern Illinois Medical Association.

14—Press articles written on the following subjects:
Lunch at School.
Nephritis.
A Few Causes of Common Abdominal Complaints.
Care for the Expectant Mother.
Deafness—Its Prevention in Children.
Mouth Hygiene.
Misconceptions Regarding Childbirth.
Escaping Responsibilities.
Diphtheria Going Downhill.
Some of the Things We Know About Cross Eyes.
Importance of Vitamins in the Diet.
Caring for the Ears.
What Kind of a Sore Throat.
The Discovery of Oxygen.

SCIENTIFIC SERVICE

1—Clinic for Physically Handicapped Children—Whiteside County.

1—Postgraduate course in Pediatrics at Benton with the following physicians participating in the program: J. C. Vonachen of Peoria, Mark Jampolis, J. C. Krafft, Henry E. Irish, Robert A. Black and H. W. Elghammer of Chicago.

14—Scientific papers presented:

Peoria City—John A. Wolfer—"Surgical Management of the Jaundiced Patient."

Will-Grundy—Clement L. Martin, Wilber E. Post, George deTarnowsky, William R. Cubbins.

Englewood Hospital—Aaron Arkin—"Carcinoma of the Lung."

American Public Health Association—R. R. Ferguson—"Medical Leadership in Health Work."

Champaign—James H. Hutton—"The Endocrines."

Calumet Branch—George deTarnowsky—"Differential Diagnosis of Acute Abdominal Affections."

Whiteside County—Philip Kreuscher—"Treatment of Foot Deformities."

LaSalle—Nelson M. Percy, David S. Beilin.

Ogle—Thomas B. Knox—"Medical Economics."

Alexander—Frank Smithies—"Chronic Indigestion."

MISCELLANEOUS

18—Package libraries sent to physicians of Illinois and Iowa.

Moving picture films secured for schools and hospitals.

93—Letters sent out for the Veteran's Service Committee.

350—Cards and invitations mimeographed for the Woman's Auxiliary.

150—Cards mimeographed for the Medical Women.

373—Notices mimeographed for LaSalle County Medical Society.

32—Invitations mimeographed and sent out for the Randolph County Medical Society.

514—Invitations sent to physicians of southern Illinois to attend the Postgraduate course in pediatrics at Benton.

RADIO PROGRAMS

20—Radio health talks given from stations WJJD, WGN and WAAF.

JEAN MCARTHUR, *Secretary.*

OPERATION FOR SLIPPING PATELLA

Soutter outlines an operation for slipping patella in which, after the position for the supporting fascial ligament is selected, an incision is made above or below this line so that a flap may be turned back down to the fascia. The patella is tunneled obliquely from above downward and from without mesially. At about the middle of this tunnel a window is opened in the top. A similar tunnel is made in the tibia in approximately the same line and well to the mesial side of the tibia. Through the ridge of bone that overlies the fascia on the mesial side of the tibia a tunnel is made with an osteotome instead of drilling. While the osteotome is in place in the tunnel, a window is cut down to it through the overlying fascia. The ligament in the patella is passed from the mesial side of the tunnel upward and the loose end, as it emerges from the outer side of the patella, is folded over the top of the patella and tucked in through the window, emerging below at the entrance to the tunnel on the mesial side of the patella. Two catgut sutures are placed in the fascia. In a similar way the fascial ligament is tucked in on the outer side of the tibial tunnel. The loose end is then brought out at the mesial side of the tibia, folded over and tucked in through the window. The two loose ends are approximated, passed through each other twice and sutured with catgut.

Original Articles

CHOLECYSTELECTROCOAGULECTOMY WITHOUT DRAINAGE IN THE TREATMENT OF GALL BLADDER DISEASE

MAX THOREK, M. D.,
Prof. Clinical Surgery, Cook County Graduate School of Medicine, Surgeon-in-Chief, The American Hospital, Attending Surgeon, Cook County Hospital, Consulting Surgeon, Municipal Tuberculosis Sanitarium, etc.

CHICAGO

A careful study of the literature of the past decade, regarding the modern treatment of gall-bladder disease, leads one to certain conclusions: (a) that danger lies solely not in operation, but in protracted conservative procedures; (b) that the dangers in operation mostly arise from causes strictly associated with the surgical method employed despite excellence of technic; (c) that removal of the gall-bladder gives better results in the great majority of cases than does cholecystostomy; (d) that although under the present method of surgical procedure, the immediate and late mortality rates have been much reduced in the hands of skilful operators, yet the general operative mortality in large series of cases is still too high, and that a minimum, varying from 20 to 40 per cent. of the operated patients remain either unimproved or with their condition only more or less ameliorated.

The statement (a) is borne out by statistics, furnished by Enderlen and Hotz,[1] which show, in 12,144 cases of biliary tract disease collected up to 1923, that the prognosis was better with surgical than with medical treatment.

Regarding (b) Stanton,[2] who studied the causes of death in 400 operated cases of biliary tract disease reported in the literature, and 100 others in local records (altogether probably representing about 10,000 operations) lists the most important as peritonitis, shock and hemorrhage, pulmonary embolus, pneumonia and cholemia. The first four of these are those which are admitted as the immediate cause of death and complications by almost all writers on the subject. Of course, there are often extrinsic causes, but here we are dealing with operative procedures only. Many complications in cholecystectomy, exclusive of hemorrhage, are traceable to biliary seepage from the cystic duct stump and from the bed of the gall-bladder not sufficiently protected by accepted scalpel surgical methods.

Davis[3] states that the most glaring fault in gall-bladder surgery in the past has been the reckless use of gauze and cigarette drains. Furthermore, peritonitis, the most common cause of death in biliary tract surgery (in Enderlen and Hotz' statistics it was almost double that of the next highest cause, pneumonia), is due to seepage of bile, principally from the cystic duct stump and the bed of the gall-bladder which contains not only biliary capillaries but also occasionally bile ducts of large caliber which may be injured during a cholecystectomy. Bile, sterile or not, in the peritoneal cavity has been proven to act as a true chemical poison.

In regard to (c) Blalock,[4] in a statistical study of 880 cases of biliary tract disease treated in the surgical division of the Johns Hopkins Hospital from 1889 to 1921, considered that this series seemed almost ideal for comparison between cholecystectomy and cholecystostomy, inasmuch as 49 per cent. of the patients that were followed after leaving the hospital had a gall-bladder removed and 51 per cent. had it drained. The percentage of cured and improved patients following the two types of operations were about the same, but only 39 per cent. of the deaths followed cholecystectomy, whereas 61 per cent. of the deaths followed drainage of the gall-bladder only. In addition, 79 per cent. of the patients who had recurrence of symptoms (with and without another operation) had had the gall-bladder drained at the original operation. A cholecystostomy had first been performed on 89 per cent. of the patients who had to undergo a second operation. The facts presented by this study led Blalock to believe that *the gall-bladder should be removed in all cases in which it is diseased* (except in cases with malignant diseases of the biliary tract).

Cattell[5] in 1929, reporting upon 634 cases treated at the Lahey Clinic, Boston, concluded that cholecystectomy was the operation of choice for gall-stones and acute or chronic cholecystitis. Most other writers are in general accord with these opinions.

Finally, in regard to (d), while recent reports from the best clinics show an immediate operative mortality of only 1 to 2 per cent., yet the extensive collected materials in the statistics of Enderlen and Hotz (12,144 cases of biliary tract disease) gave a *global mortality of* 9.28 *per cent!* In the 4,032 cases of cholecystectomy collected from the literature by Sanders,[6] the operative

mortality was 4.73 per cent. Verbrycke[7] states that in the Garfield Memorial Hospital, Washington, D. C., the mortality rate for biliary tract surgery, by individual operators there, during two years, *varied from* 1 *to* 28 *per cent! Mortality rapidly advances with age;* in the sixth and seventh decades, the period in which most patients undergo operation, the mortality rate is more than double that of the fourth decade.

Reports of end results in biliary tract surgery, especially in cholecystectomy, show that only about 70 to 80 per cent. of those traced have made good recoveries. It is at least presumable that among those not traced the number of complete recoveries would be much smaller. From a careful survey of the literature it appears *that the average surgical mortality in uncomplicated cases is about* 8 *to* 10 *per cent., and in complicated cases,* 10 *to* 20 *per cent.*

The question of drainage or no drainage following a scalpel cholecystectomy has a good deal to do, apparently, with the question of mortality and complications and is one that is much debated. Many surgeons (including the writer until recently)[8] are still guided by Kehr's dictum that "proper drainage is half a successful gall-bladder operation." It seems equally true that drainage is half an unsuccessful operation. Witzel, Riedel, Rotter, Bier, Hoffmeister, Haidenhain, Haberer and Ritter attempted series of gall-bladder operations without drainage to return to the drain after sad experiences. However, many surgeons are turning toward tight closure of the abdomen without drainage. The indications for this have been widened during the recent few years; Sanders, Verbrycke, Fowler,[9] Richter and Zimmermann,[10] as well as others, favor it and report series of cases with better operative and convalescent results than with drainage operations. The chief dangers of drainage are: bile seepage, possibility of thrombosis and embolism, hemorrhage from erosion of vessels, cholemic bleeding, embarrassed cardiac action, particularly in the aged, pneumonia, acute dilatation of the stomach, biliary fistulae, herniae, etc. These are the main dangers of scalpel surgery of the bile tract in general, but most surgeons still balk at leaving the abdomen undrained, especially in infected cases. Theoretically, a dry operative field and a tightly closed abdomen seem, unquestionably, best, but with the present technic of scalpel cholecystectomy such conditions with complete satisfactory peritonealization cannot be often realized. Pribram,[11] of Berlin, noted no operative death in a series of 200 consecutive cholecystectomies for biliary disease which comprised complicated and infected cases. In the total series of 215 cases he had only one post-operative death from pneumonia some days after operation.*

He attributes these happy results to "an isolated destruction of the mucous membrane of the gall-bladder with the thermocautery" after dividing the cystic duct. He terms the procedure mucoclasis. In my hands charring of the mucous membrane in biliary disease as advocated by Pribram has been disappointing. Attacks of violent pains in the right hypochondrium, and continuation of other symptoms complained of by some of the patients prior to carbonization caused me to abandon that procedure.

Despite the good results noted from carbonization of the mucous membrane by Pribram it seems to me that the charred eschar left behind following the destruction of the mucosa acts, as all eschars resulting from burns do, as an impervious, loosely attached foreign substance, carrying with it the potential dangers of partial or possibly total detachment. This may result in hemorrhage, thrombus, and embolus formation, and an onrush of discharge of the liquid elements of the blood from the burnt areas. Such course of events carries with it the possibility of liberating dormant or active pathogenic microorganisms from the remaining Rokitansky-Aschoff sinuses. Pribram[12] later substituted the diathermy current for "carbonization of the mucous membrane of the gall-bladder (mucoclasis)." He aims at "burning," "charring" and "carbonization" and not at coagulation.

In order to avoid confusion let it be recalled that if a flat electrode is *firmly* applied to a tissue surface and a current of sufficient amperage permitted to pass through it, coagulation of the proteins of the tissue results in a few seconds. This is shown by the white color assumed by the tissue thus treated. This is called *electrocoagulation.* On the other hand, if this same electrode is *not applied firmly* and a small space of air is permitted to intervene between the electrode and tissue (dielectricum), sparkling (fulguration) results and carbonization with black

*Albertin (22) reports that in 310 cases Pribram had 9 deaths.

discoloration of the tissues ensues. A reapplication of the electrode to such carbonized surface will not permit coagulation to take place.

Mucoclasis by carbonization, it will be seen, is an entirely different method from my procedure of cholecystelectrocoagulectomy which aims not at the charring of the mucous membrane but at complete destruction of the entire gall bladder wall by electrocoagulation. The rationale for my procedure is evident. The micro-photographs here submitted tend to prove that carbonization with its insulating qualities is inadequate to destroy the deeper layers of the wall of the gall-bladder which harbors pathogenic microorganisms; it thus defeats the very aim of the operation, viz., the destruction of the diseased gall-bladder. Cholecystelectrocoagulectomy destroys the disease harboring components of the gall-bladder wall. Furthermore, one can readily visualize the obvious disadvantages of a gall sac, the mucous membrane of which alone has been carbonized and the sac resutured. This, in substance, represents the mucoclasis procedure. In my operation, the redundant diseased gall-bladder wall is cut away. The diseased portion overlying the liver bed is electrocoagulated and then sutured over by serosa which is additionally reinforced and protected by the ligamentum falciforme hepatis (vide infra).

With the object of possibly obviating the evident disadvantages of carbonization, I undertook to pursue a series of experimental* and clinical studies in that direction.

Dogs, macacus rhesus and macacus leoninus were the experimental animals used. Carbonization was carried out on the mucous membrane of the gall-bladder of these animals to varying depths into the muscularis. After some weeks or months the gall-bladders of these animals were removed. It was shown that destruction of the mucosa and even portions of the muscularis by carbonization (to the depths which the usual carbonization allows) still showed sinuses remaining in the deeper portions of the gall-bladders thus treated. This may be readily understood when we consider that the gall-bladder is composed of a mucous membrane which forms anastomosing folds and is lined with high columnar epithelium which secretes a mucoid substance (goblet cells with basophil and oxyphil granules). It rests on a well developed basement membrane. The tunica propria contains collagen, elastic fibers and many lymphocytes,

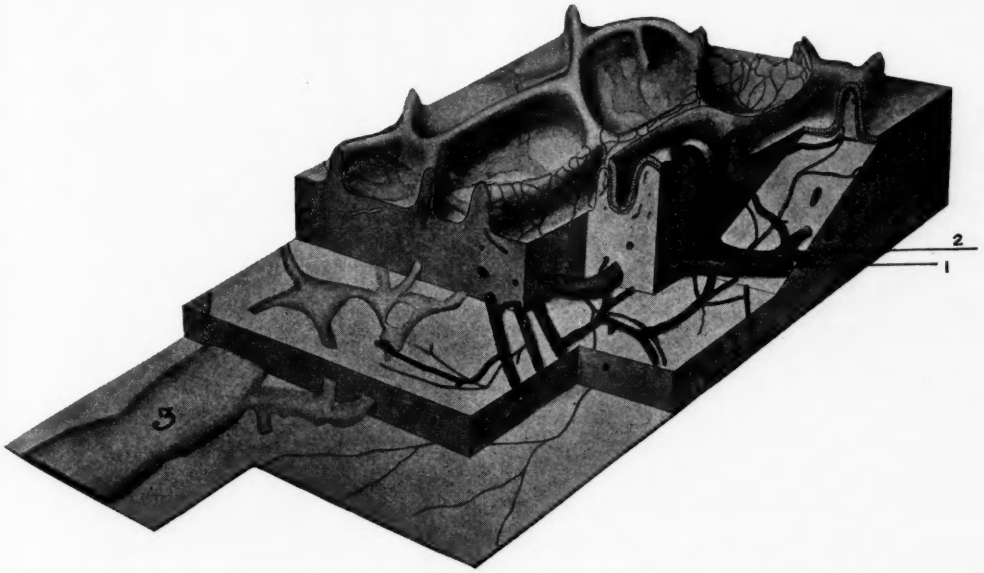

Fig. 1. Reconstruction of wall of dog's gallbladder. (60x) 1, arteries; 2, veins, 3, lymphatics. (After M. T. Sudler).

*I wish to acknowledge my appreciation to Dr. Karl Meyer and Mr. J. F. Askin, Registrar of the Cook County Graduate School of Medicine for the encouragement given me in these experimental studies.

plasma cells and wandering cells. The muscularis consists chiefly of circular and a few oblique and longitudinal muscular fibers. The connective tissue membrane is divided into a fibrous layer of collagen fibers, a subserous layer of loose connective tissue and peritoneum. (Fig. 1.) The epithelium forms deep excavations into the underlying tissues which may perforate the muscularis and even reach down to the fibrous layer.

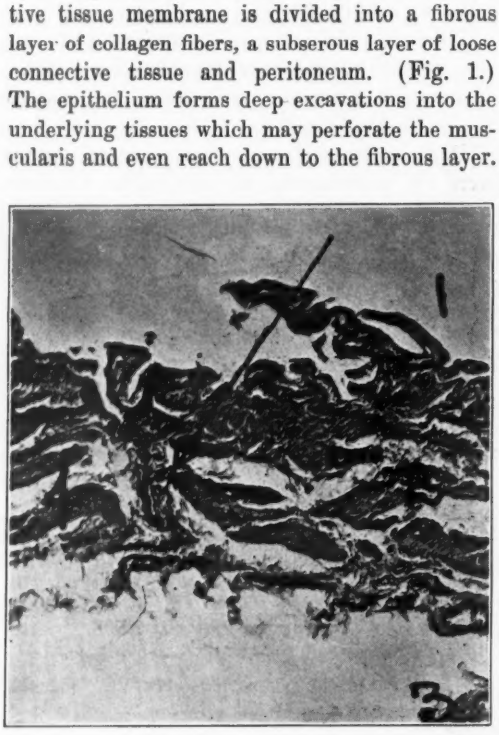

Fig. 2. Normal human gallbladder. (40x). 1. Points to mucosa. 2. Muscularis. 3. Position of serosa. 4. Rokitansky-Aschoff sinus, often erroneously called Luschkas gland extending nearly throughout entire thickness of muscularis.

These are known as the glands or sinuses of Rokitansky-Aschoff[13] described in 1842. They are sometimes referred to as the glands of Luschka (Fig. 2). According to Boyd,[16] in chronically inflamed gall-bladders these herniations or out-pouchings of the mucosa may often be seen to pass for varying distances into the muscularis and sometimes even into the perimuscular layer. The destruction, therefore, of the mucosa alone or even the muscularis for a limited distance will not destroy the deeper sinuses which may and apparently do harbor pathogenic micro-organisms. The lymph apparatus of the gall-bladder runs to the periphery of the organ and thence to the cystic gland. (Figs. 3, 4 & 5). Infections may thus be transmitted from the remaining sinuses to the liver and pancreas, again emphasizing the inadequacy of charring the mucous membrane in the hope of eradicating deep-seated foci. It will be recalled that charring produced by any agent has limited penetrating powers, for as soon as the eschar is

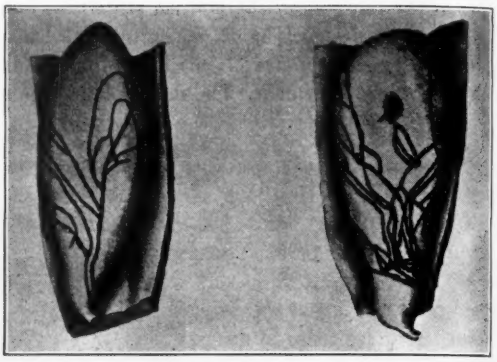

Fig. 3. Gall bladder of adult man showing superficial lymphatics half natural size (Sudler). Fig. 4. Gallbladder of man 19 years old, dead of chronic nephritis, showing large superficial lymphatics. (Sudler).

Fig. 5. Lymphspaces of gallbladder of dog. (Sudler).

formed it acts as an insulator to the underlying tissue and prevents heat diffusion. In gall-bladders much thickened by disease such eschar

affects only the superficial portion of the thickened gall bladder wall.

The current of electrocoagulation, on the other hand, accomplishes deep penetration and the heat thus generated extends along the fluid conducting paths of the blood and lymph stream. It is because of that, that one observes in Fig. 6 (depicting the liver of a guinea pig in which an electrosurgical, coagulating, incision was made and the portal vein injected with India ink), that not only does the coagulating current affect the tissues along the line of incision but that the

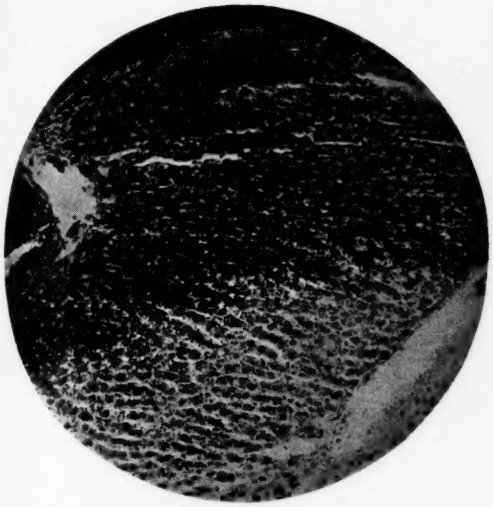

Fig. 6. Liver of guinea pig. Observe line of demarcation between coagulated zone (coagulating cut) and zone in which blood capillaries are filled with India ink. For a distance of 3 mm. the blood capillaries remained empty. Here also the closure of the blood capillaries as in the case of the lymphcapillaries is effected *not by thrombosis but by coalescence (coagulation) and junction of the vessel walls.* (Zschau).

blood capillaries next to the coagulated zone remained inaccessible to the penetration of the India ink for a distance of 3 mm.

While it is true that thermocauterization from any form of heat also closes intercellular spaces where the heat contacts the tissues, it is equally true that such closure (limited in extent), is soon followed, as a result of the marked hyperemia adjoining the carbonized area by an intensification of the lymph and blood capillary flow. This tends to dislodge the eschar and thrombi and predispose to bleeding. Such augmentation of wound secretion, consisting of lymph, toxic products, bacteria, loosened cellular elements and so forth, are obviously undesirable factors. Electrocoagulation effectively prevents this. In infected areas particularly is electrosurgery of service. Its value in prevention of dissemination of infectious materials, especially the prevention of the formation and dislodgement of thrombi, so likely in carbonization, becomes apparent. The

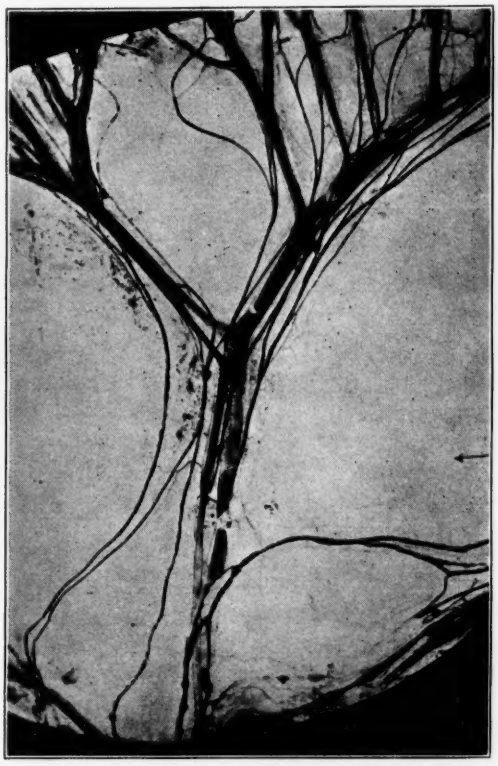

Fig. 7. Mesentery of guinea pig. Electrocoagulation with small ball-electrode along course of mesenteric vessels followed by subserous injection of India ink of the lymph vessels of the mesentery and wall of bowel. Arrow points to spot of coagulation followed by complete interruption of lymph vessels and spindle shaped narrowing and closure of blood vessels. Note that adjacent lymph vessels not touched by the electrode, remained unaffected. (Zschau)

tendency to infarction, pneumonias, etc., as a result of embolism, so frequent in operations on the biliary tract, are thus guarded against.

The illuminating studies of Zschau,[14] who injected India ink into the portal veins of guinea pigs after electrocoagulating portions of the liver, proved the value of electrocoagulation. The

remarkable effect of this current is that it *does not cause thrombosis* in the blood capillaries and smaller vessels. Occlusion of capillary spaces and vessels in electrocoagulated zones results from fusion of the coagulated vessel wall structure. Such fusion is preceded or accompanied by a recession of the blood column in the blood capillaries and small vessels, at the point of contact with the electrode. The ends of the vessels become spindle-shaped and fuse. (Figs. 7 & 8.)

The lack of absorption from the wound area explains the absence of shock in electrosurgical procedures. Likewise, shock, in the sense of Kobak,[15] is prevented by capping the nerve ends during the coagulation process.

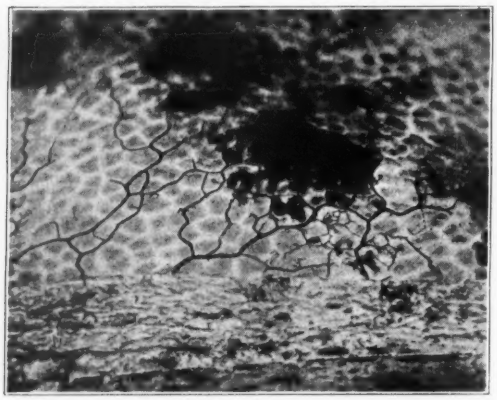

Fig. 8. Liver of pig. Injection of large lymph vessels of Glissons capsule in pig with India ink. Note interruption of circulation in lymph vessels at margin of coagulated zone. (Zschau)

It must be remembered that electrocoagulated surfaces on parenchymatous organs (liver, kidney, spleen) do not tend to detachment, as is the case in carbonization, but to encapsulation and final resorption. (Fig. 9.) As long as there remain structures capable of union over the electrocoagulated area, wound healing is not interfered with. Even if only skin and subcutis are united over the coagulated region the wound will still heal (von Seemen) as long as no infectious material reaches the operative field from without or from within (hematogenic or by way of the lymph channels).

While my experimental studies and clinical observations in a series of unselected cases of gall-bladder disease showed most encouraging results and pointed emphatically to the undesirability of drainage of any sort, and the fact that electrocoagulated areas demand peritoneal covering for rapid healing, caused me to approach the problem from another angle. I found that this may, in a measure, be effectually accomplished by bringing the peritoneal surfaces of the electrocoagulated gall-bladder into apposition (vide infra). To reinforce that protection and to further insure against biliary seepage, the ligamentum falciforme hepatis was sutured over these areas in the experimental animals as well as in the clinic and the results found gratifying.

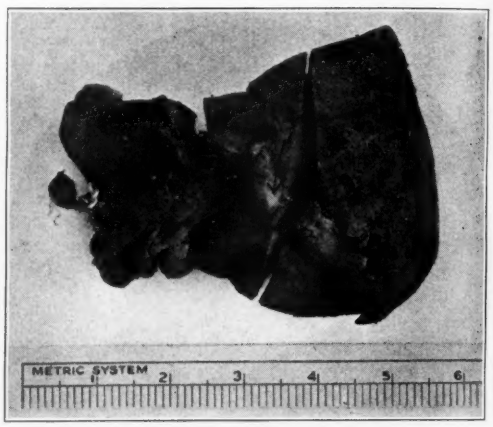

Fig. 9. Electrocoagulation of surface of liver with graft of falciform ligament. Brindle bull-dog. Specimen removed 7 weeks after operation. An area the circumference of a nickel was electrocoagulated to a depth of about 2 cm. A freely detached portion of the falciform ligament was sutured over it. Note firm union of falciform ligament to electrocoagulated surface of liver. Arrow points to area described.

(Fig. 10.) Both pedicle and free grafts were used over the bed of the gall-bladder and the stump of the cystic duct. In all operations performed no drainage was used.

From the foregoing it is evident that charring of the mucosa in the sense of Pribram fails to fulfill the requirements of destruction of all parts of the affected gall-bladder wall. To further emphasize its futility we are indebted to Rosenow,[17] who studied forty-seven cases in which the gall-bladder was removed at operation and from which cultures were made from the contents and wall of the organ. In many instances, cultures obtained from the contents differed from those obtained in the wall and in some instances cultures from the latter source

were positive, although the bile was sterile. The prevailing type of organism found in the wall was a streptococcus. Brown[18] found streptococci in 17 per cent. of cases in which inflammatory changes in the gall-bladder were marked. Illingworth,[19] in a study of 100 cases, has found that streptococci are much more frequently found in the wall of the gall-bladder than any other organism and Wilkie[20] concludes that streptococci play an important role in the production of cholecystitis. In view of this it stands to reason that carbonization of the mucosa will not effectually affect the micro-organisms inhabiting the deeper sections of the gall-bladder.

Besides it is generally agreed now that in cases of cholecystitis the whole wall of the gall-bladder is more or less extensively involved in the inflammation. (Fig. 11, 11a and 11b.) Graham[21] emphasizes that *very often the dependent layers of the gall-bladder, especially the subserous layer next to the peritoneum show the most severe inflammatory changes, while the epithelium may look intact in the most severe grades of inflammation.* It must be remembered that the epithelium of the gall-bladder disappears in about five or six hours postmortem.

The standard technic of the present method of cholecystectomy by the scalpel is scarcely susceptible of improvement. Everything that can be done, preoperatively, operatively and postoperatively, for the safeguarding of the patient appears to be done in most standardized hospitals, yet this current method permits the death of patients and disability to survivors to continue. Improvement of results must, therefore, be looked for by intensive study and improvement of the methods in vogue.

Encouraged by my experimental studies, the operation I devised was performed on a series of cases of varied biliary conditions (acute and

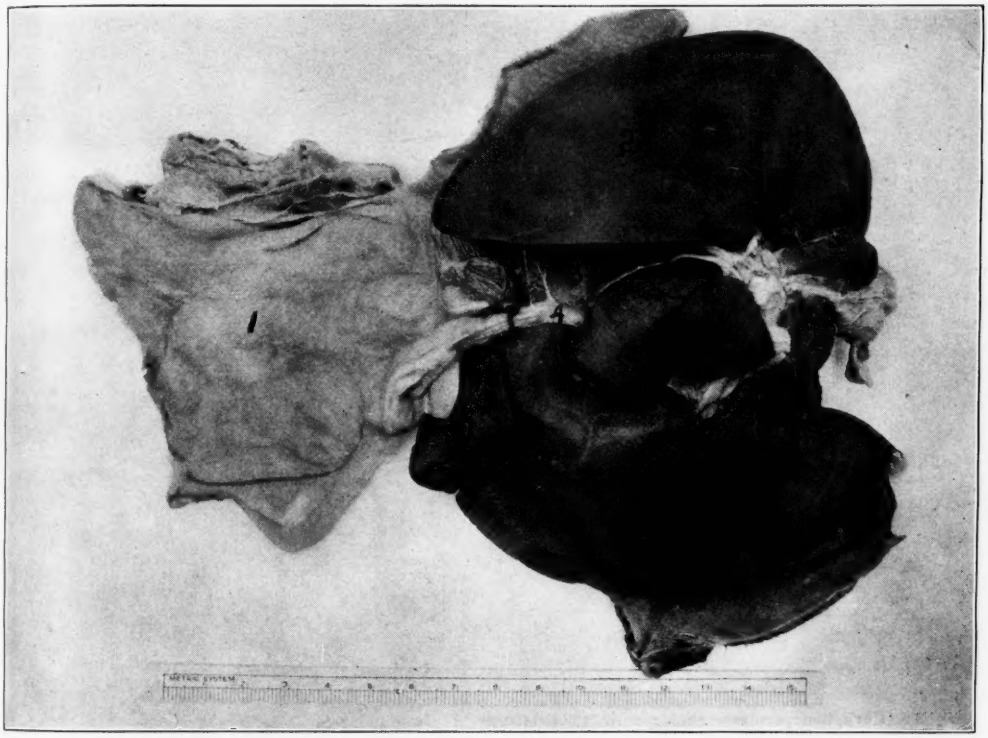

Fig. 10. Results of cholecystelectrocoagulectomy with falciform implantation. Police dog. (See author's technic.) Specimen removed seven weeks after operation. 1. Falciform ligament. 2. Lobe of liver. 3. Liver bed. 4. Ligated cystic duct. Note fine adhesions between falciform ligament and liver bed. Also, firm union of lower end of falciform ligament with stump of ligated cystic duct.

chronic cholecystitis, cholelithiasis, gangrene of the gall-bladder, early perforation with escape of bile, suppurations, etc.). The results were gratifying.*

AUTHOR'S TECHNIC OF CHOLECYSTELECTROCOAGULECTOMY

General anesthesia (nitrous oxide—oxygen, ether—never ethylene). Open abdomen with scalpel or diatherm knife. Expose gall-bladder.

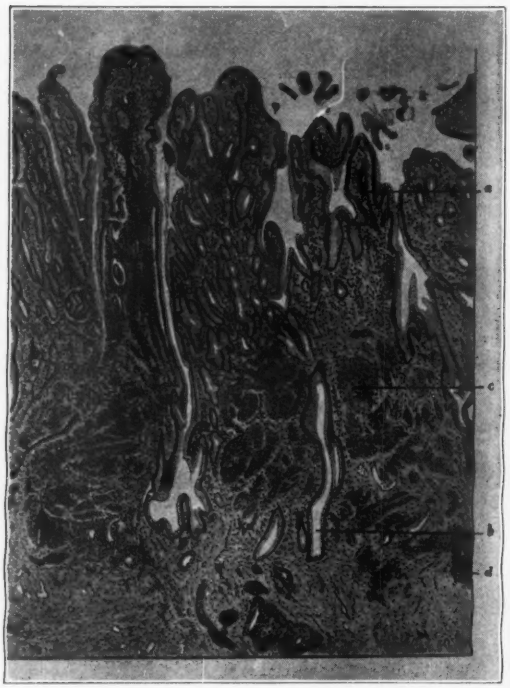

Fig. 11. Chronic hyperplastic cholecystitis. 1. (Roussy, Leroux and Oberling). a. Hyperplastic mucosa. b. Luschka's gland in longitudinal section. c. Muscularis. d. Inflammatory focus.

Examine biliary passages and adjacent viscera thoroughly. Do not endeavor to forcibly dislocate liver. Such insults are often responsible for right lower lobar pneumonia. Adequate exposure is essential. (Fig. 12.) Isolate field of operation with moist, warm laparotomy sponges. Aspirate gall-bladder. (Fig. 13.) Ligate cystic duct between two catgut ligatures and divide it. Incise gall-bladder from above downward (diatherm knife or scissors). Remove stones. (Fig. 14.) Explore biliary ducts. Do not force probes or sounds. Gentle exploration will not traumatize the delicate biliary passages unnecessarily. Remove redundant portion of gall-bladder and electrocoagulate remaining part thoroughly but

*Space forbids a complete report of all cases comprising my series, which is now in preparation and will be made the subject of a special article.

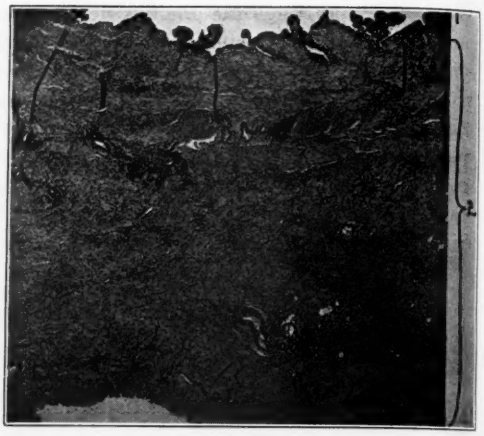

Fig. 11a. Chronic cholecystitis (35x). 1. Mucosa. 2. Much thickened muscularis showing all phases of chronic inflammatory reaction.

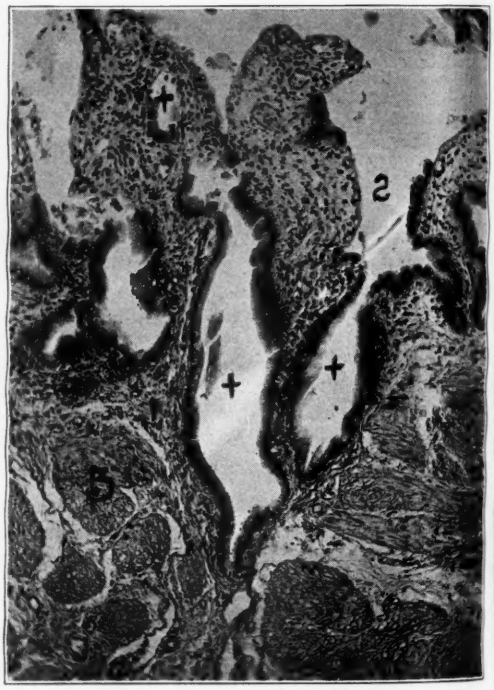

Fig. 11b. Chronic cholecystitis (x 85) xxx Rokitansky Aschoff sinuses in longitudinal section. 2. Epithelium covering mucosa. v. Muscularis.

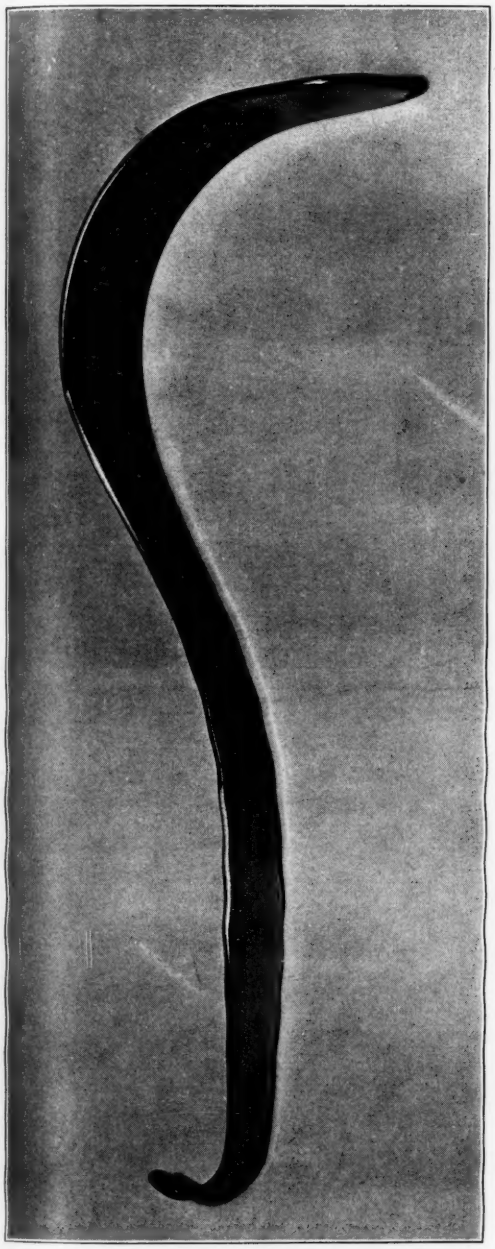

Fig. 12. Insulated retractor used by author in cholecystelectrocoagulectomy.

Fig. 13. (a) Aspiration of gall bladder contents. (b) Ligation and division of cystic duct.

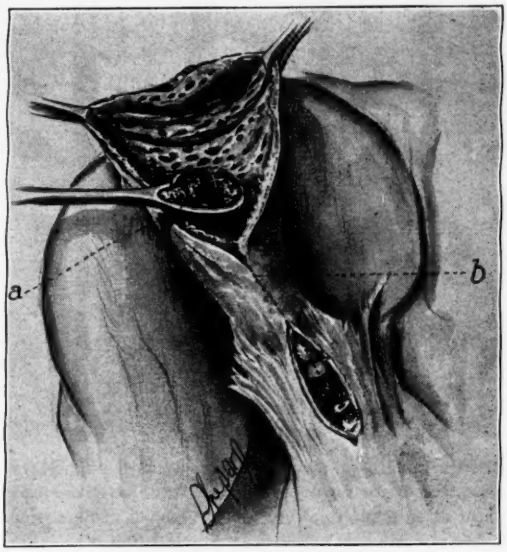

Fig. 14. Gall bladder opened. Gallstones scooped out. (b) Line of incision to complete opening of gall bladder.

not excessively. (Fig. 15.) *Avoid charring.* Remember that the field to be coagulated must be dry. A good apparatus, thorough mastery of how best to obtain the proper degree or coagulation (exact amperage and voltage plus well constructed electrodes) (Figs. 16, 16a and 16b),

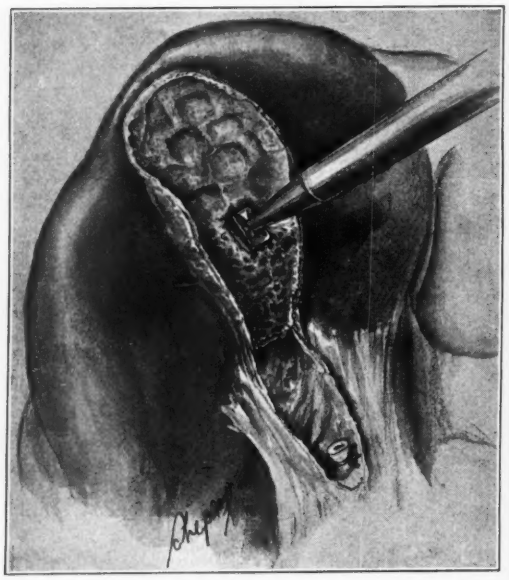

Fig. 15. Redundant portion of gall bladder removed. Remaining portion of gall bladder wall attached to liver bed electrocoagulated.

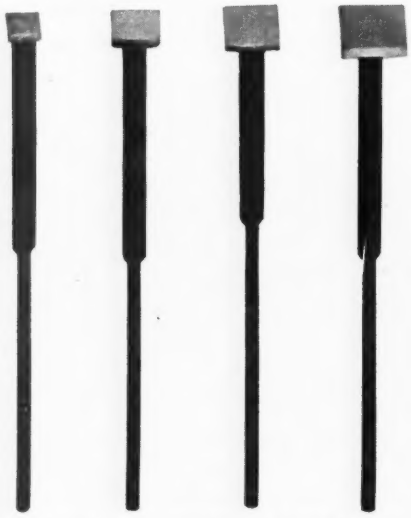

Fig. 16. Author's square electrodes used in cholecystelectrocoagulectomy. A later pattern has the handle bent at an angle to afford greater ease of manipulation.

are essentials.† Gauge carefully the degree of penetration of the coagulating current through the gall-bladder wall toward the liver bed. Coagulate slowly but thoroughly. With experience one will soon learn the proper degree of penetra-

†Fischer's model H diatherm apparatus has served me well.

Fig. 16a. Gall bladder of dog electrocoagulated with round electrode showing undesirable spaces left at contiguous areas.

Fig. 16b. Arrow points to area on dog's gall bladder electrocoagulated with author's square electrode. Note absence of spaces unaffected by current.

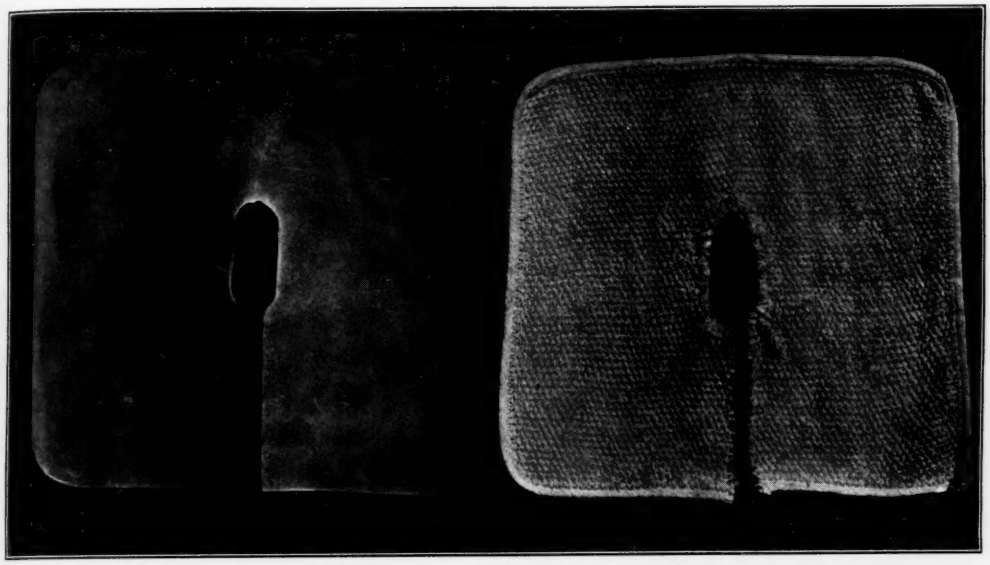

Fig. 17. Author's asbestos or rubber shield to protect liver from undesirable electrode contacts during electrocoagulation.

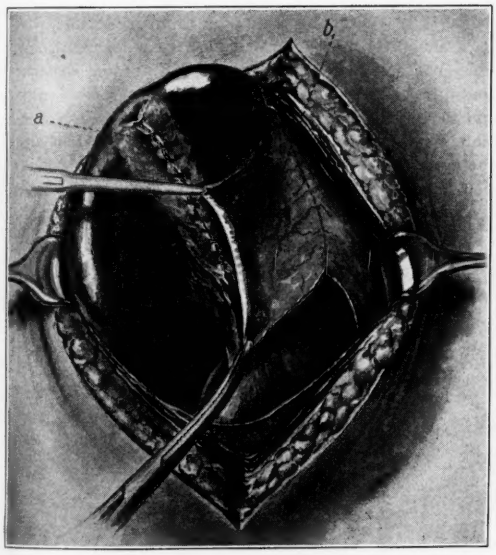

Fig. 18. (a) Peritoneal borders at liver bed sutured over electrocoagulated area. (b) Pedicle flap of ligamentum falciforme hepatis ready to be sutured over suture line covering electrocoagulated zone.

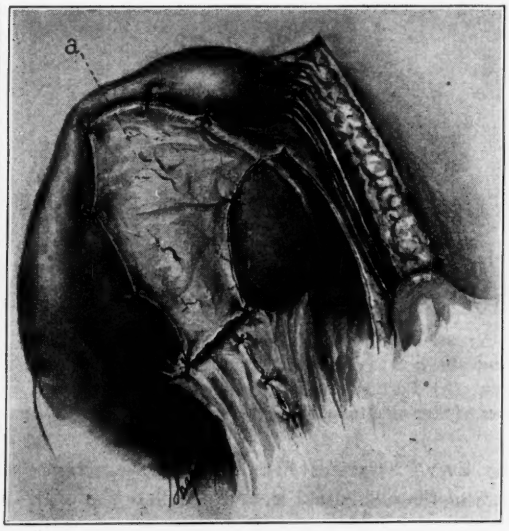

Fig. 19. Operation completed. (a) Pedicle graft sutured in place. Peritoneum covers area of cystic duct.

tion required through the thickness of the gall-bladder wall. To avoid injury to contiguous surfaces an asbestos or rubber shield may be made to surround the gall-bladder. (Fig. 17.)

Approximate the peritoneal edges carefully over the coagulated area. A fine curved needle to which a No. 0 catgut is swedged is used.

To further guard against the possibility of biliary seepage from the cystic duct and to supply serous surfaces, so essential in healing over

coagulated areas, I mobilize the ligamentum falciforme hepatis and swing it over onto the site of the liver bed and there attach it with fine catgut by a few sutures. (Figs. 18 and 19.) If the falciform ligament is short and cannot, by reason of chronic inflammatory adhesions, be swung into place, it may often be successfully dissected out and brought into position. If that is not possible it may be completely detached and sutured as a free graft over the area indicated. (Fig. 20.) In either event its lower end is placed to cover or cap the ligated cystic duct and its upper part is attached at the border of

Fig. 20. (a) Free graft of detached falciform ligament attached to suture line covering electrocoagulated area. (b) Portion of falciform ligament capping cystic duct. (Semi-diagrammatic.)

the liver.‡ Careful hemostatis and exact closure of the abdominal wound complete the operation.

A thorough appreciation of Joules' law, coupled with an understanding of the effects of various apparatus and types of electrodes on the tissue to be acted upon, is essential. The appreciation of the differences in action of fulguration, desiccation, carbonization and electrocoagulation are imperative. (Figs. 21-25.) Also, it

‡While studying the falciform ligament and its possible uses in surgical procedures in the upper abdomen I found the literature barren on the question.

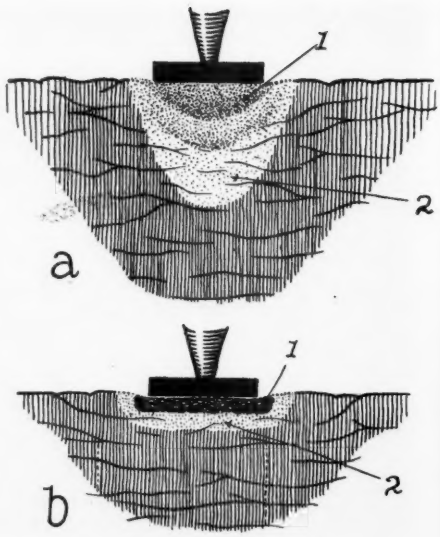

Fig. 21. Diagram of effects of electrocoagulation and of carbonization. In (a) one observes the degree and extent of electrocoagulation when correct technic is used. The dense area immediately under the electrode indicates that here the action is of greatest intensity. It gradually decreases as indicated in the diagram. Marginal action is seen to extend for some distance from the border of electrode. When improperly used and too much current is applied charring results immediately under the electrode (b). Such eschar insulates the area acted upon and further effects of coagulation are frustrated.

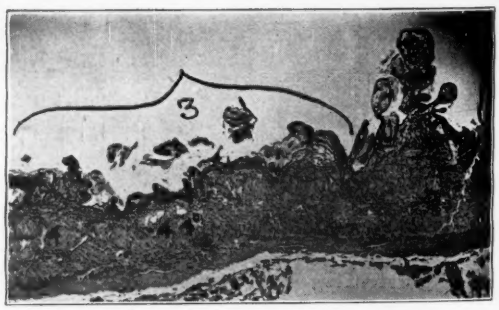

Fig. 22. Thermocauterization of wall of gall bladder of dog. (32x). 1. Normal folds of mucous membrane. 2. Rokitansky-Aschoff sinuses dipping into normal muscularis. 3. Carbonized area. 4. Rokitansky-Aschoff sinuses remaining in muscularis after thermocauterization of mucosa.

must be remembered that the depth of the electrocoagulation extends a little deeper than the

circumference of the electrode. (Fig. 26.) It is most intense immediately under the electrode. It extends also laterally to the electrodes (marginal action). Most important is the use of proper amperage and voltage. If too much current is used and the electrode improperly applied the aim of electrocoagulation is defeated and burning, with eschar formation, results. The eschar acts as an insulator and deeper coagulating action is prevented. Attempts to remove the electrode in such cases will disclose that it is adherent to the underlying tissue. It then resembles in all respects the charring of a Paquelin cautery. The purpose of the operation is under such conditions defeated. The thickness of the gall-bladder wall is the indicator to the size of the electrode and the degree of current to be selected in order to effect the desired degree of electrocoagulation.

High frequency currents generate heat within the body, the penetration effect depending upon (a) the proportion of the depth of the electrode, (b) the density of the current and (c) the duration of the application.

It must be remembered that the appearance of the tissues does not reveal to the naked eye the depth of actual tissue coagulation, for, indeed, tissue cells may be killed by coagulation without immediate demonstrable changes.

The healing process in electrocoagulated areas differs according to location. It is different on the surface than in the depths of body cavities.

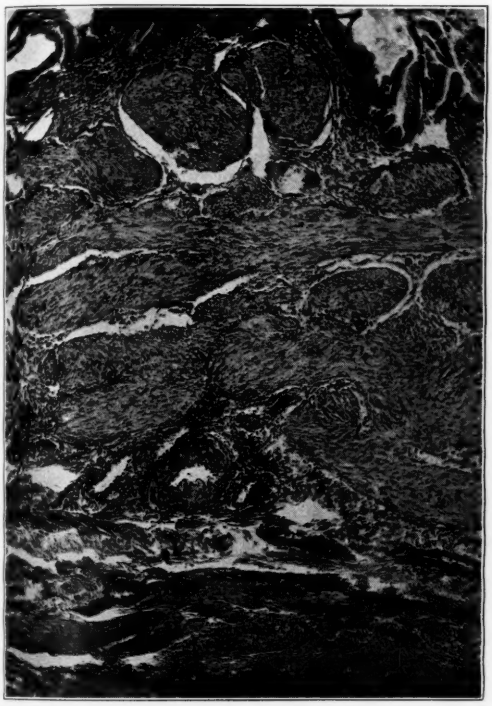

Fig. 23. (75x). Effects of carbonization on gallbladder with chronic inflammation. Observe portion of Rokitansky-Aschoff sinus (right) persisting. Entire muscularis and serosa unaffected. Large vessel at bottom of section markedly engorged.

Fig. 24. (85). Effects of forced carbonization on wall of inflamed gallbladder. (1) Eschar. (2) Rokitansky-Aschoff sinus in transverse section. (3) Muscularis. (4) Serosa. Note excellent state of preservation of layers of gall bladder past the mucosa.

I communicated my observations to Dr. R. W. McNealy, who informed me that he mustered the falciform ligament into use in 1931, in a case of marked changes in the gall-bladder, the major portion of which he trimmed away and after placing a catheter in the cystic duct and down through it into the common duct, a small iodoform gauze wick was placed against the remaining portion of the gallbladder. He then freed partially the falciform ligament from its mooring near the free margin of the liver, turned it to the right and attached it to the lateral margin of the gall bladder edge. The catheter and gauze wick were brought out along this path.

In the former it tends to extrusion, in the latter to encapsulation and final absorption and reposition by fibrous tissue.

In the depths, as in the liver, for instance, adhesive processes over and about the electrocoagulated area are manifest within the first few hours after operation.

SUMMARY AND CONCLUSIONS

1. A method of electrosurgical removal of the gall-bladder is described which, when carefully carried out, may be used in simple and complicated cases of gall-bladder disease without resorting to drainage. It reduces morbidity and mortality to a minimum and cuts hospitalization short. The much dreaded age factor in operations on the gall-bladder loses its terror. Shock is absent. The term *cholecystelectrocoagulectomy is* descriptive of the procedure. ***It must not be confused with mucoclasis which aims at burning (carbonization) of the mucous membrane of the gall-bladder.***

2. A prerequisite to the achievement of satisfactory results is a patent common duct. An occluded cystic duct from any cause is an indication for cholecystelectrocoagulectomy.

3. Experimental studies have shown that any method of carbonization (fulguration, Paquelin and electrocauterization) predispose to hemorrhage, thrombosis and embolism. Such cauterization will not destroy pathogenic micro-organisms in the depths of the affected gall-bladder wall. Cholecystelectrocoagulectomy is free from these drawbacks and effectually accomplishes destruction of the entire thickness of the gall-bladder. The surgeon has under control the degree of penetration he wishes to accomplish.

4. The ligamentum falciforme hepatis may be used as a pedicle or free graft in covering sutured or raw surfaces to great advantage, thus reinforcing and protecting the areas concerned against seepage and safeguarding the processes of repair.

5. Electrocoagulated areas on intra-abdomi-

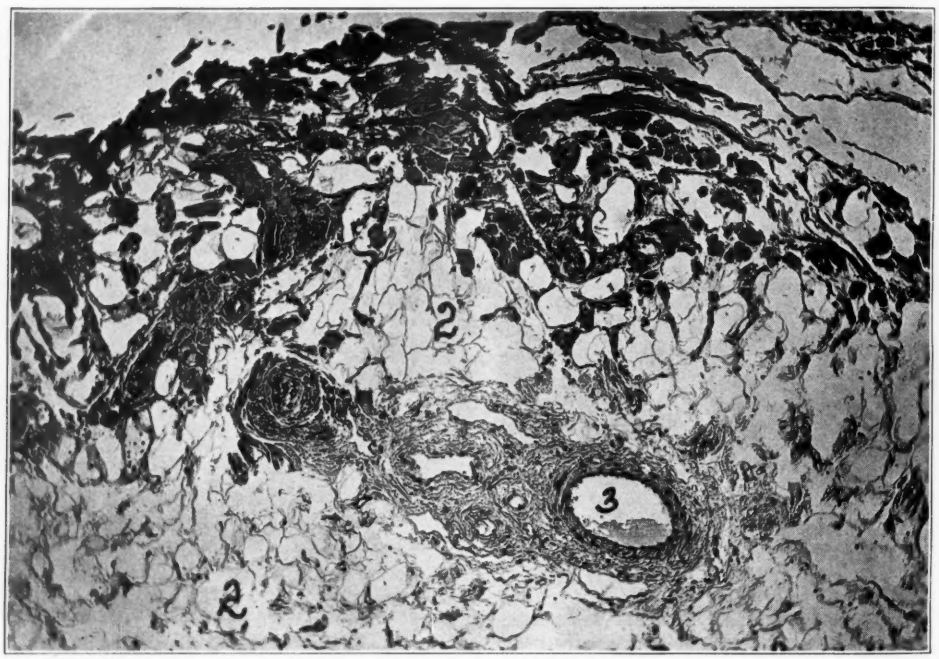

Fig. 25. (x85). Effects of electrocoagulation on diseased gallbladder (chronic cholecystitis). 1. Destroyed mucous membrane. 2. Vacuolated spaces and homogenous islands of tissue the result of tissue dissolution and coagulation. 3. Blood vessel empty with small coagulum in lumen. Note, all layers are affected in the coagulating process.

nal organs tend to heal by encapsulation. They do not interfere with wound healing. On the contrary, they heal promptly when the wound is closed securely. Therefore, drainage is not only undesirable but is distinctly deleterious. *Many patients succumb because of drainage.* It prolongs the healing process and predisposes to infection. Cholecystelectrocoagulectomy eliminates the necessity of drainage and its unpleasant sequelae.

Fig. 26. Effects obtained from bipolar electrocoagulation of muscular tissue. Note smooth action and degree of coagulation produced at will. Observe depth of penetration (upper specimen) without carbonization, Sagittal section of electrocoagulated area (lower specimen). Note degree of penetration and marginal action of current. A strand of fascia blocked the progress of the coagulating process.

6. Inasmuch as the global mortality of removal of the gall-bladder by the scalpel method in uncomplicated cases still ranges somewhere between 8 and 10 per cent. and in complicated cases from 10 to 20 per cent., it stands to reason that if (as in my series) cholecystelectrocoagulectomy promises to reduce the mortality in unselected cases (barring unforeseen accidents such as result from anesthesia, precipitate hepatic insufficiency, etc.) to near the zero point, the effort of acquiring an exact technic for its performance, it will be agreed, is truly worth while.

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THE TREATMENT OF PROSTATIC OBSTRUCTION BY MEANS OF TRANSURETHRAL RESECTION*

HERMAN L. KRETSCHMER, M. D.

CHICAGO.

As a result of the tremendous strides that have been made in the field of preventive medicine, the acute contagious diseases are under control and the morbidity and mortality are reduced to almost an irreducible minimum. Partly as a result of this, the span of life has been increased some twelve and one-half years. Consequently,

*Read at the Annual Meeting of the Illinois State Medical Society, held at Peoria, Illinois, May 16, 1933.

a much larger group of people reach the age of sixty or more, so that, at the present time, it seems to be the consensus of opinion that the problem of medicine of the future will be the prevention and management of the degenerative diseases. Among the diseases of this group in which there seems to be a very definite increase in the death rate are hypertension, various types of heart disease, and lesions of the kidney.

Equally as much interested in this problem of prolongation and conservation of life as the internist, is the urologist, in the treatment of the man with bladder neck obstruction.

About one hundred and thirty years ago the English surgeons were familiar with the fact that by means of simple cutting devices introduced through the urethra they were able to reduce the size of the prostate, relieve the obstruction, and allow urination to reestablish itself, and in that way, prolong the life of the patient. I believe that to the English surgeons must be given great credit for this observation, namely, that simple incision reduces the size of the prostate and reestablishes urination.

You are all familiar with the surgical era, and the surgical era was provocative of such satisfactory results that these various transurethral methods soon fell into disuse.

At the present time, we are again swinging back toward the transurethral relief of obstruction, and there seems to be a definite tendency away from major surgery in the treatment of the various types of bladder neck obstruction.

Age Incidence. This paper is based on a series of 216 transurethral electric resections performed on 198 patients. The youngest patient in this series was thirty years of age and the oldest eighty-nine. An analysis of the age incidence is given in the following table.

TABLE OF AGES

Youngest Patient—30 Years
Oldest Patient—89 Years

35 to 40 years— 1 case	60 to 65 years—53 cases
40 to 45 years— 1 case	65 to 70 years—46 cases
45 to 50 years— 4 cases	70 to 75 years—33 cases
50 to 55 years—12 cases	75 to 80 years—14 cases
55 to 60 years—26 cases	85 to 90 years— 1 case

Benign hypertrophy of the prostate, as a rule, begins at about the age of fifty-five. However, you are all familiar with the fact that obstructions at the vesical orifice may occur not only in men at this time of life, but also in early adult life and moreover in infants and children. These obstructions are generally due to median bars and contractures of the vesical orifice.

The difference in the number of resections and the number of patients recorded in this paper is due to the fact that in some of the cases a second resection was necessary. In one instance a third resection was required. The fact that more than one resection was necessary is explained by the following facts. In some of the early cases it was clearly evident that not enough tissue was removed at the first resection, especially in some of the very large prostates. In others, after one large lateral and a large middle lobe were removed, the sacral anesthesia wore off, or the patient became tired, and a second resection became necessary. In a procedure so free of shock there are no objections to doing a second resection when needed.

Diagnosis of the Nature of the Obstruction. The diagnosis in this group of cases is illustrated in the following table:

Benign Hypertrophy	174 cases
Carcinoma	22 cases
Stricture and Folds of Mucous Membrane	2 cases
Total	198 cases

Strictures and folds occurred in two patients who had had prostatectomies elsewhere and in whom symptoms persisted. They were completely relieved by resection.

It is of great importance, particularly in this group of patients, that the patient should be subjected to a complete physical examination and an accurately written history recorded. Many of these patients suffer from organic disease involving other parts of the body, necessitating treatment before the resection is undertaken. You are all familiar with the fact that about 40 per cent. of all prostatic patients have some disturbance of the heart, many of which need preoperative study and treatment. In the following table is given the incidence of concomitant organic disease.

ASSOCIATED GENERAL PATHOLOGY

Heart Disease:	
(a) Myocarditis (various forms)	87 cases
(b) Coronary Occlusion	14 cases
(c) Angina	9 cases
Diabetes	10 cases
Lues	5 cases
Pulmonary Embolism	2 cases
Cerebral Thrombosis	2 cases
Bronchial Asthma	1 case
Hemiplegia	1 case
Carcinoma of the Liver and Stomach	1 case
Total	132 cases

Thus in these 198 cases, 132 of them had serious organic disease besides the prostatic obstruction.

Associated Genito-Urinary Pathology. As a result of obstruction at the vesical orifice there develops, sooner or later, definite damage to the bladder and upper urinary tract with resulting stasis which predisposes to infection. It is of great importance that each case should have a complete survey of the entire urinary tract before any sort of operative procedure is carried out. In 53 of the 198 cases, associated pathological changes were found as given in the following table.

Diverticula of Bladder	17 cases
Carcinoma of Bladder	10 cases
Bladder Calculi	10 cases
Renal Insufficiency (marked)	6 cases
Hydronephrosis (marked)	5 cases
Cord Bladder	3 cases
Solitary Kidney	2 cases
Total	53 cases

Cases With Residual Urine. During the early stages of prostatic obstruction the patient is able to empty his bladder completely. However, if the obstruction continues, there is a failure of bladder function, and residual urine is present. The amount of residual urine varies in each case and may vary in amounts in the individual case. In the following table are given the number of cases and amounts of residual urine of over 250 centimeters up to complete retention.

CASES WITH RESIDUAL URINE

Complete Retention	28 cases
1000-500 centimeters	18 cases
500-250 centimeters	29 cases
Total	75 cases

In one of the patients with complete retention, a man of eighty-four, the top of the bladder reached almost to the xiphoid and thirteen days were necessary to effect *decompression.*

Infection of the Urinary Tract. In the largest number of prostatic patients there occurs, sooner or later, some infection of the urinary tract that requires preoperative treatment. In this series of cases bacteriologic study of the urine showed the following:

Bacteriology

B. Coli	52 cases
Staphylococcus Albus	46 cases
Staphylococcus Hemolyticus	4 cases
Streptococcus Hemolyticus	8 cases
B. Coli Hemolyticus	2 cases
Eberthella	1 case
B. Proteus	1 case
Total	114 cases

It is of prime importance that the infection be controlled or entirely cleared up if possible. The following table gives the methods of preparation which were pursued in this series.

Indwelling Urethral Catheter	80 cases
Suprapubic Cystostomy	24 cases
Massage and Bladder Irrigation	25 cases
No preparation	69 cases
Total	198 cases

In addition to local methods of treatment, general therapy, such as forcing fluids, is important. Fluids should be given by mouth and when sufficient amounts cannot be taken this way, they should be given per rectum or subcutaneously.

Postoperative Course. Reactions following transurethral resections are generally very mild. Temperature reactions are less frequent than after prostatectomy, and, when they do occur, are less severe and do not last so long. In 117 resections in this series the temperature lasted only from one to two days. In the following table is given the temperature record.

POSTOPERATIVE TEMPERATURE

Average Length of Time—2.5 Days

Temperature 1 to 2 Days Only—117 Resections

98.6°	to	99°	18 resections
99°	to	100°	53 resections
100°	to	101°	67 resections
102°	to	103°	43 resections
103°	to	104°	13 resections
Total			216 resections

Hemorrhage. As a rule the urine remains blood-tinged for a few days. Our efforts are toward sending the patient back to the ward relatively free of bleeding. As a rule, the urine is no longer blood-tinged after the third day. In the occasional case it may be necessary to irrigate the bladder and to evacuate clots, but this depends upon the care exercised in controlling the bleeding at the time of operation.

There was only one case in the 216 resections in whom it was necessary to do a suprapubic for the control of hemorrhage and that occurred early in the series. Primary bleeding can be controlled at the operating table. Secondary bleeding, that is, bleeding which occurred between the tenth and the fifteenth day, was present in only 7 out of the 216 resections. In 6 of them it was only necessary to evacuate the clots and irrigate the bladder with hot permanganate. In one case, a man with carcinoma of the liver, it was necessary to resect the bleeding point.

Average Postoperative Stay in the Hospital. No attempt was made to hurry the patients out of the hospital. The records show that the shortest stay in the hospital was 2 days and the average stay, 6.5 days. These figures refer to the straight resection cases.

The group prepared by suprapubic cystostomy had a slightly longer stay, since to the resection is added the time necessary for the suprapubic fistula to heal. These cases had an average stay of fifteen days.

SUMMARY

The results obtained justify the statements that have repeatedly been made to the effect that this new form of treatment carries with it a much lower mortality rate, and this in spite of the fact that many patients are operated upon by this method late in the progress of the disease, the delay having been caused because they had been told by the surgeon in charge that the case was inoperable. The records show that the mortality was only 2.77 per cent. following 216 transurethral resections.

TRANSURETHRAL RESECTION OF BLADDER NECK OBSTRUCTION*

(A Motion Picture Presentation)

BUDD C. CORBUS, M. D.

CHICAGO.

Historical. The prostate is believed to have been first described by Nichilo Massa, a Venetian, who died in 1563. Riolanus, an Italian, about the middle of the sixteenth century stated his belief that the bladder could be obstructed by a swelling of the prostate.

French surgeons claim priority in the development of transurethral surgery of the prostate. However, history shows that the English physicians of a hundred years ago were careful anatomists as well as skilled surgeons, and to one of them, Guthrie, 1830, the credit must be given for developing the first instruments in the removal of certain types of bladder neck obstructions.

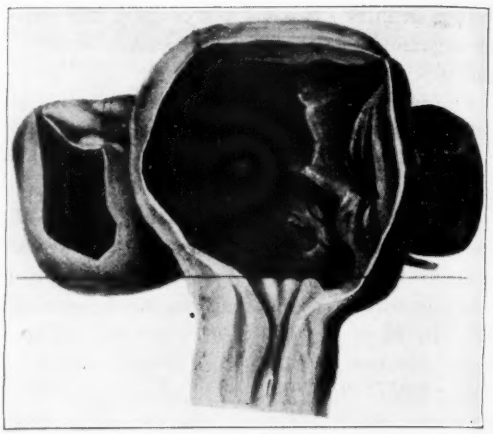


Fig. 2. First Description of Median Bar by G. J. Guthrie in 1830—103 years ago.

Although the instruments, but rarely used, at that early period were fairly good, when compared with our modern instruments, no provision was available for the control of hemorrhage. This resulted in the substitution of the cutting blade by the galvano cautery (the Bottini galvano cautery knife, 1877). This instrument was cumbersome and dangerous because the operator had no accurate way of determining to what extent the prostatic obstruction was burned.

W. N. Wishard of Indianapolis, in 1902, should be credited with devising the first cystoscope with the galvano-cautery attachment. With this instrument it was possible to determine just how deep and where to cauterize the bladder

*Read before Section on Surgery, Illinois State Medical Society, Peoria, May 16, 1933.

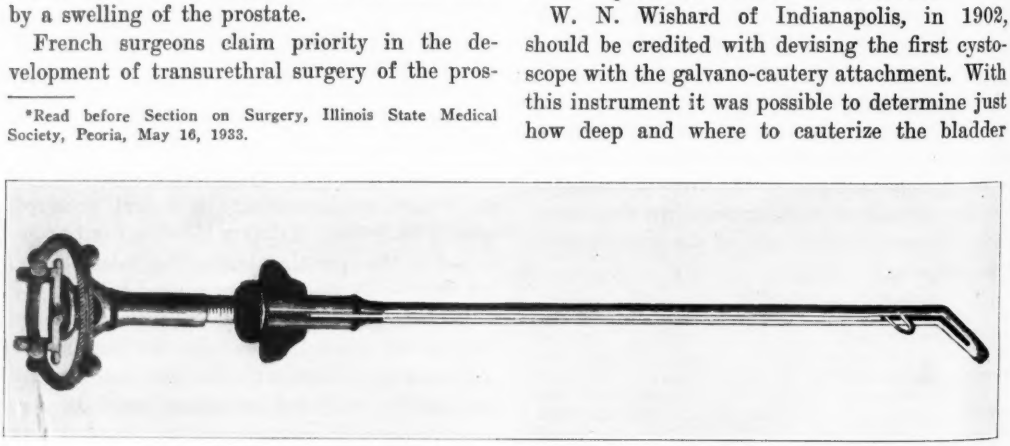


Fig. 1. Guthrie's Median Bar Excisor used 103 Years Ago.

neck obstruction. For technical reasons the method was never widely used.

With the development of Young's prostatic punch, in 1913, a new impetus was given to the procedure. Later, in 1923, Caulk added a diathermy coagulating electrode for the control of hemorrhage.

With the development of the newer high frequency cutting current, urologists throughout the country have given the procedure serious consideration, and it was soon demonstrated that large pieces of prostatic tissue and bar formations could be removed transurethrally.

Stern, in 1926, presented the first instrument for removing vesical neck obstructions transurethrally by a high frequency cutting current.

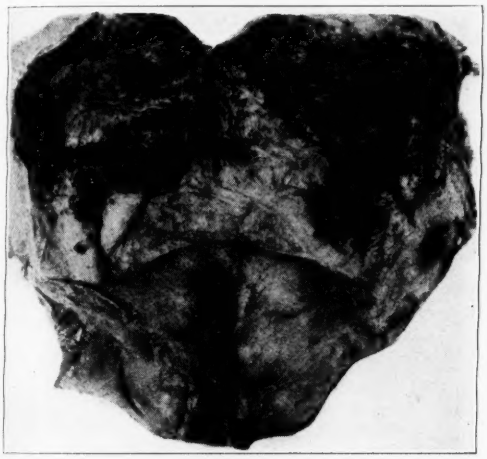


Fig. 3. Bilateral and Commisural Prostatic Hypertrophy. From Alexander Randall's collection. Not suitable for transurethral resection.

During the succeeding years, many instruments were devised by American urologists, Davis deserves most credit, but none of them have met with the success of the McCarthy transurethral resector. At the present time this is the most widely used instrument for removing bladder neck obstruction and permits adequate control of hemorrhage.

The indications for transurethral resection of bladder neck obstructions are:

1. Hypertrophy of the prostate, and
2. Fibrous median bar.

Resection of carcinoma of the prostate is only a palliative procedure.

Although transurethral resection of bladder

Fig. 4. Solitary posterior commisural hypertrophy. From Alexander Randall's collection. If this lobe is extensive, it is not suitable for transurethral resection.

Fig. 5. Solitary subcervical lobe hypertrophy. From Alexander Randall's collection. Easily removed by transurethral resection.

Fig. 6. Typical fibrous median bar formation. From Alexander Randall's collection. Ideal for transurethral resection.

neck obstruction has been recommended for all types of prostatic hypertrophy, in the author's opinion it seems most applicable for:

1. Bilateral prostatic hypertrophy.
2. Solitary subcervical lobe hypertrophy, and
3. Fibrous median bar formation.

Diagnosis of bladder neck obstruction: Cystoscopy is the only accurate method of determining the type of obstruction. Rectal examination, however, is of value, but is not conclusive except in carcinoma. The typical hard, fixed, prostate is always indicative of cancer. Urinary retention is present in bladder neck obstruction in every instance and catheterization for its relief is often followed by dangerous sequelae, consequently great care should be taken in the choice of a catheter to relieve and measure urinary retention. The old style silver catheter should never be used except as a last resort. A No. 18 to 20 French scale soft rubber catheter is preferable, and if this is not available, a Mercier (prostatic) catheter should be substituted. It is always well to use an oily lubricant in the passage of the instruments.

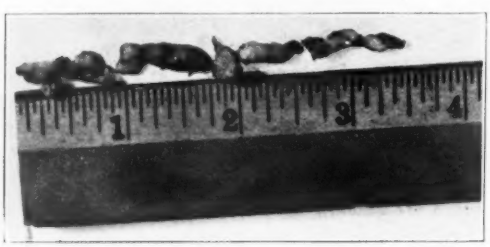


Fig. 7. Size of some of the pieces removed.

The use of the indwelling catheter to promote urinary drainage is substituted for suprapubic cystotomy. This method of drainage is continued until the patient has been satisfactorily prepared for resection.

The most important factors in the preoperative care are:

1. Stabilization of blood-pressure.

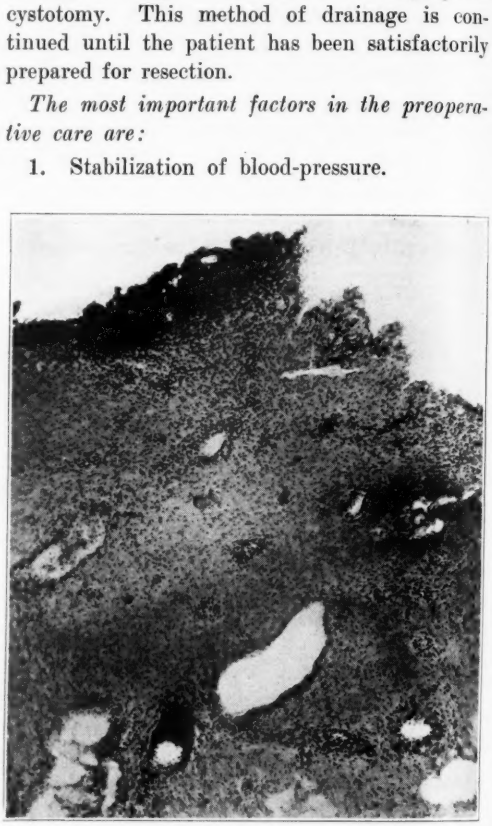


Fig. 8. Pathological study of excised tissue shows depth of burn about ⅓ m.m.

2. Improved renal function, as indicated by blood chemistry and excretory tests, and
3. Condition of heart, as indicated by clinical and electrocardiographic examination.

Vasectomy is performed as a routine procedure before operation to minimize the possibility of a complicating epididymitis.

It is inadvisable to keep an old man in bed during the preoperative stage, so he is encouraged to be out of bed and to walk as much as possible.

The transurethral resection is accomplished by:

1. The utilization of an especially constructed machine that delivers a high-frequency

current that seals as it cuts the tissue under water.

2. The McCarthy transurethral resector.

In our series of resections spinal anesthesia, using the Pitkin solution, has been our choice.

While this procedure is fraught with far less complications than the open operation for prostatectomy, it requires most meticulous care in its execution, and for the time being the operation should necessarily be performed only by those with an extensive experience in transurethral work.

As the pathological study of the excised tissue shows the depth of the burn to be about one-third of a millimeter, postoperative possibility of later contracture is hardly possible. The superiority of this method if properly executed is obvious. There is no external incision and the duration of the patient's hospitalization is ten to fourteen days instead of three to six weeks with the open operation.

SUMMARY

I believe that transurethral resection has received more publicity both among the medical profession and the laity than any other operation of modern times.

Patients have called me on the telephone, stating their desire to be operated upon at once, honestly believing the whole procedure could be accomplished in a few days. Surgeons as well, in their endeavor to perform the operation, have often given the impression that the whole procedure is nothing more than a hospital holiday.

I hope I have clearly shown you in this presentation that there are certain types of obstructions that should not be attempted by this method.

Any surgeon who is trained in the procedure can shave a hole through the obstructed vesical neck, but will the end results be as satisfactory as some form of open operation? The hospitalization may be of shorter duration, but the attending complications and final results I am sure will not compare with a suprapubic or perineal prostatectomy.

There have been no fatalities in my series. The oldest patient that I have operated upon is 84 years of age and the youngest 28 years. Hemorrhage has occurred twice, necessitating opening the bladder. Urinary sepsis is a frequent and often prolonged complication and occasionally results in pyelonephritis.

The decision as to whether a given case is suitable for a resection or not, must be decided upon after a careful cystoscopic study of the vesical neck has been made. It is here that the experienced cystoscopist who interprets what he sees correctly can definitely decide upon the correct surgical procedure to advise.

Transurethral resection is a surgical procedure, often times more tedious and difficult to perform than the open operation. Careless, incomplete removal of the obstruction can only result in disappointment for both patient and surgeon.

DISCUSSION ON PAPERS of DRS. KRETSCHMER AND CORBUS

Harry Culver (Chicago): A fine combination of papers, I think, in that we had a nice demonstration and treatise on the history and technical part of this procedure, preceded by a wonderful study of the fine bunch of cases, I think that had those two papers been reversed it probably would have been better.

In looking over the procedure as a whole, I think we can definitely state there are certain known factors about this and certain few definitely unknown factors. Those which are known by all those who have attempted to do this give evidence of a very difficult, very technical procedure, which calls for instrumentation, experience, calls for knowledge of anatomy of the posterior urethra and vesicle neck. Any one without those two prerequisites will eventually have grief.

Another known feature is that with any type of vesical neck obstruction where a resectoscope can be passed sufficient tissue can be removed. I don't say it is right that it should be removed, but sufficient tissue can be removed. Another thing which appears to be well known is that marked sepsis or we should say urosepsis, especially upper urinary tract sepsis is the most common morbidity producing complication. People might take exception to that.

Dr. Kretschmer is to be congratulated upon the small number of clinical incidences of pyelonephritis. I would like to ask Dr. Kretschmer, however, just how he interprets thirteen cases with a temperature of 104, where he cites but three instances of pyelonephritis.

It is my impression of urethral instrumentation followed by reaction and I believe it is the general consensus of opinion that is an indication of an upper urinary tract infection; in other words, so-called urethral fever is an expression of an upper urinary tract infection.

A thing which has not been mentioned, which I think is a pertinent factor in this connection is that these resections do not disturb the potency of the individual, a factor not of great importance to the general

run, but of considerable importance in a few extra-ambitious old men.

Some of the unknown features of this procedure, I say unknown, as far as I have been able to determine they are unknown, are the permanency of the results in the doubtful group; that is the group of prosthetic hypertrophy. Another unsettled problem, as far as some individuals are concerned, is the proper selection of cases. Some will state that only this group or that group should be so managed; others state they will resect anything where they can pass a resectoscope, which is a twenty-four or twenty-eight. Just what cases should be classified as resectible in the general run of vesical neck obstructions? I think all believe that the median bar is the ideal selection for this procedure and is the one that was probably the first cause of the development of the procedure, starting back, as Dr. Corbus has shown, some years ago and increasing efficiency of the procedure up to the present time.

There will be exception to the next classification which I make, but I am honestly of the opinion that all carcinomas of the prostate which are clinically diagnosed as such are not cases for major surgery, generally speaking. These cases are ideal for resecticopic procedure and in many instances, of course, must be resected from time to time. Dr. Kretschmer cited two cases. I have had two recurrences within a year. They can be resected with less difficulty the second time than before and are entirely comfortable and healthy, definitely carcinomatous clinically and histologically.

Another type which I believe is ideal and anything but ideal for at least a suprapubic enucleation is the fibrous type of prostate, either as such or associated, as it frequently is, with the bar. These are fairly simple to do with the resectoscope. Only a small amount of tissue is necessary to relieve the obstruction. Another type which is ideal and which has been brought out nicely by Dr. Kretschmer and Dr. Corbus is that of either type of the middle lobe, the two definitely known types of the middle lobe, true and so-called subcervical, middle lobe. It is ideal in every respect for this procedure, understanding, of course, when this is being done you may be leaving a nucleus for further progress in the laterals. I believe it is quite generally understood in the etiology of the lateral lobe hypertrophy, especially by those in Vienna, that they essentially begin in a sub-cervical group and develop from that point. This must be considered, nevertheless, that the obstruction at some time is essential to middle lobe hypertrophy and is ideal for this procedure. A moderate trilobular hypertrophy is ideal in most cases; however, that is a borderline type in some instances, depending upon the age and other factors which are distinctly individual.

As far as my experience is concerned and the experience of others who have had much experience in this connection, there is a very definite doubtful group; that is the large trilobulars and the definitely intra-urethral laterals. The last group mentioned is very difficult technically; frequently occurs in young individuals and comes without previous symptoms, with acute urinary retention. When we see those in that group from fifty-five to sixty-five, it is very difficult to get out sufficient tissue and it is so typically ideal for any type of prostatectomy, that I would put that group in practically every instance, unless there be some definite contradiction, for total prostatectomy and not resection.

I would put into the prostatectomy group all those with very large trilobular prostates whose general condition would warrant prostatectomy. If it is necessary to sit down and take so much time, even multiple resections, two, three, four, or five, to get sufficient tissue, I believe in that case, if the condition warrants it, a prostatectomy should be done in the first place. In making selection of cases from these two doubtful groups, I would consider especially the question of infection. Infection, I believe, is the most common serous complication, and the one which must be most carefully watched preoperatively. The point has been stressed that these people must be prepared the same as for general surgery. I would direct your special attention at this point to infection within the prostate. We all know that a case being prepared may have a little sepsis as it goes along.

After suprapubic cystostomies have been performed, or when a patient is being prepared by a catheter, in many cases there is an indication of infection within the prostate and sections of this would definitely show that to be the case. I would consider that in many instances if it is very definite it is a contraindication to resection and believe that should be an indication for either perineal or suprapubic prostatectomy.

In talking with Dr. Phifer some time ago concerning this particular subject, he demonstrated without any doubt whatsoever a mass of pus under the surgical capsule and between the fibrous capsule of the adenoma which was enucleated. There is no question of removing tissue and stopping bleeding and sealing up the lymphatics. It will likewise prevent proper draining of the infected gland.

Another indication where I think we should change from resection to prostatectomy is the thing mentioned before, degenerated areas of carcinoma in hypertrophied lobes. Histologic sections should be made of all the tissue and if there is any evidence of degenerated carcinoma, I believe that patient should at once be prostatectomized. The only hope for complete recovery, and that is about the only chance where we have a possibility for complete recovery in carcinoma.

The age of the individual is the thing that must be considered, I think, in any one of these groups of hypertrophy, whether small or relatively large. If it is a young individual with intra-urethral laterals a prostatectomy should be done. If it is an old individual with life expectancy of a few years, I believe that something less radical should be done, resection of tissue from the floor of the vesical neck which probably would be sufficiently lasting to serve his purpose.

How do we know when we have sufficient tissue? Certain studies have been made by men to prove this. We cystoscope them and see that things seem to be pretty fair clinically. It was left to Dr. Alcock of the

University of Iowa to present a unique method, a visual demonstration of determining when sufficient tissue had been removed. (Illustration with slides.) I believe this is a marked progress in the management of the prostate obstruction, vesical neck obstruction. I believe the maximum benefit has not yet been derived and will not be derived until we are sure about the recurrence proposition and time only will determine that and when we can get standardized groups of cases suitable for this procedure.

Eugene B. Perry (Chicago): Mr. Chairman, Members of the Society: I enjoyed Dr. Kretschmer's analysis of cases. It was very interesting.

Dr. Kretschmer noticed there was a discrepancy between the old figures for carcinoma and the figures that he has obtained from resected pieces. We have found the same discrepancy in our own experience with resected pieces. However, this discrepancy seems only apparent, for the physical examination or the manual resection or the autopsy discloses much more undeniable carcinoma. It may be that the apparent discrepancy is due to the fact that the tissue impinging on the urethra, which is removed, is benign tissue raised into a position of impingement by an underlying carcinomatous mass. Caulk of St. Louis has written that tissue removed trans-urethrally from the internal orifice is reliable for microscopic diagnosis in as high as 80 per cent. of malignancy cases. This I would seriously question in the earlier stages. I should like to ask Dr. Kretschmer in regard to the treatment of bladder carcinoma with the resectoscope.

I wish to draw Dr. Corbus' attention to the fact that when he is making a microscopic section of one of these resected specimens he is really on the distal side of his electrode and does not get the depth of his burn. The greatest coagulation occurs along the course of the current between the active wire electrode of the instrument and the inactive plate electrode on the patient's back. The tissue on the distal side of the electrode should be very much less coagulated. However, the amount of coagulation seems to be a very minor detail, except as it is effective in controlling hemorrhage.

It is well to call the attention of the general surgeon and practitioner to the fact that so-called prostatectomy by any method by which it is ordinarily done is truly just a resection. It is simply digital removal of a large amount of tissue from the region of the posterior urethra. The entire gland is not ordinarily taken out. After a so-called prostatectomy there may be a recurrence of the hypertrophied enlargement from the remaining tissue. The only complete prostatectomy is the one described by Young for carcinoma, in which the prostate and capsule are entirely removed with the seminal vesicles and prostatic urethra, en masse. The bladder is then brought down and joined to the urethra. Consequently the term prostatectomy as applied to the usual operation is a misnomer, just as truly as thyroidectomy is a misnomer, because thyroidectomy is not a complete removal of the thyroid. Neither one is a complete anatomical removal of the offending gland.

We have heard of the benefits accruing to the patient of this trans-urethral removal of tissue impinging upon the posterior urethra. Not much has been said (except by Dr. Culver, which I was very glad to hear) about the difficult technique of the operation nor of the skill and training required of the operator. It is really a most difficult, technical, tedious procedure. It requires a great deal of experience and training. The rapid consecutive improvement in the mortality and morbidity rate shown by Alcock in Iowa in each succeeding twenty-five cases of his series shows the result of the accumulation of skill and experience.

The speakers have pointed out the value of accurate, meticulous pre-operative preparation. They could also have drawn out the necessity for the accurate, careful, post-operative management. Both are just as important in this type of operation as in the old prostatectomy. Prostatectomy, as it was usually done, meant the digital removal of a bit of tissue about the posterior urethra. When the patient was properly prepared and the process was done digitally by the open operation, with due respect for hemorrhage and some of the neighboring structures, the occasional operator was frequently able to get good to fair results. The trans-urethral procedure is a very tedious, technical one, and requires training and experience in the operation itself. In other words, it should not be attempted by any occasional operator, unless he is perfectly familiar with the pathology of the posterior urethra. The contra-indications for the operation undoubtedly diminish with the skill of the operator and his experience.

As to the mortality, we wish you would bear in mind that Dr. Kretschmer's mortality is very satisfying. When you consider that trans-urethral resection is used in cases that are desperate risks, in which the old open prostatectomy would be contra-indicated, a higher mortality could be expected. This operation, done by a competent operator on a properly prepared patient with careful post-operative treatment, is truly, in my opinion, the answer to an old man's prayer.

Charles McKenna (Chicago): To date, I have not written one line on prostatic resection. There are two factors to be taken into consideration. There are a great many machines on the market. One morning in the Cook County Hospital, I saw six men trying to sell one doctor a machine. It is another great invitation to induce the patient to have an operation because a great many patients and doctors as well believe that this operation is a question of a cystoscopy or a day in the hospital. That is not said with jest.

I have seen within the last two or three weeks doctors refer cases where they had already told the patient it was only a question of forty-eight hours. The removal of a portion of the prostate is a surgical operation and truly a surgical operation. There are two factors about which I want to speak. We work both at the County Hospital and Research Hospital where we have plenty of material, yet I have done less than 100 resections; that means we are doing a great many removals other ways.

I want to say a word about hemorrhage. We have had no trouble with hemorrhage and I have had only

two or three cases that had any hemorrhage at all afterward, even bleeding. We found early that in controlling hemorrhage it is not so much in dealing with the prostate proper as it is in dealing with that portion of the prostate where the mucosa is attached both anteriorly and posteriorly. I think you can all visualize that when one applies the resector to the posterior portion of the prostate and severs the posterior mucosa, the mucosa becomes detached from the prostate and leaves a bleeding margin which cannot be seen easily. The prostate tissue proper can be seen and the hemorrhage controlled by turning on the coagulator. When you cut the anterior mucosa, and by that I mean the mucosa next to the posterior urethra, it too becomes detached and falls away from the prostate bed. Thus, one may say that most of the danger is confined to the mucosa and not to the prostate gland proper. That is probably why we have to deal with postoperative hemorrhage because we cannot see the bladder while the coagulation is going on. I have had occasion to see such a case suprapubically after a resection.

I think it would be a valuable asset to the organization if we had more reports concerning the postoperative results several months after resection has been done. We have opened suprapubically three cases where the patient was complaining of difficulty with urination following resection. In all three we found a pinpoint opening from the bladder into the posterior urethra. This is easily explained. When you consider that the prostate has three lobes, if the median bar is resected two lateral lobes are left. If the operator decides to take off a section from the lateral lobes, it is easy enough to see that with the middle lobe out, the two lateral lobes will collapse and the resection has made it possible to get a complete union of both lateral lobes. So the patient is really worse off than when he started. I think we should all recognize that it is important when we do resect the lateral lobes to do it sufficiently so that this collapse cannot take place.

In my opinion any operation on the prostate or bladder is a major one and the patients should be prepared for resection just as carefully as for suprapubic or perineal prostatectomy. The postoperative care likewise should be as carefully carried out. I do not think prostatic resection is a minor procedure.

Dr. Kretschmer (closing the discussion): Mr. Chairman, I wish to thank the members for their generous discussion. In answer to the question about the temperature reactions: The cases we put down as cases of pyelonephritis were the patients who had a high temperature, severe pain in the back and tenderness in the kidney area, upon palpation, or pain upon fist percussion. In the large majority of cases the fever was of short duration.

Whether the fever in the remaining cases was due to pyelonephritis, or due to the mere passing of the resectoscope, or whether it was due to stirring up infection in the prostate, I am unable to say.

Dr. Culver mentioned the cases in which the removed prostate showed the presence of miliary abscesses. I am sure we have all seen this type of lesion, probably quite frequently when the removed prostate was opened after its removal.

I think it is just in this type of cases that severe chills and fever follow instrumentation. Many patients, as you will know, who present themselves with a clear urine, often develop chills and fever after simple instrumentation, such as the passage of a sound. I believe these instrumental reactions are primarily due to the fact that the instrumentation stirs up latent infection in the prostate. In other words, I think many of the reactions are prostatic in origin and not renal.

Dr. Culver also stressed the question about the permanency of the results. I believe this question can only be answered with the passing of time. Should there be recurrence, I can see no objections to doing a second resection.

Dr. Corbus stressed the point about selecting the cases. In many of our cases we had no choice in this matter. In the paper I referred to, the cases in whom no other procedure can have been done, I mean a major surgical operation; I cited the patient who had a blood pressure of 260, the many patients with attacks of coronary occlusion and angina pectoris, the patients with hemiplegia, and the patient with severe broken compensation who had fluid in the pericardium, both plural cavities and abdomen, edema of the scrotum, penis and lower extremities.

I agree with Dr. Culver that the patient with carcinoma of the prostate is an ideal case for resection. This method has served me very well in three types of cases. First, in the patient who is wearing a suprapubic tube, resection allows removal of the tube, a great convenience I am sure. Second, the patient who has had a prostatectomy for a carcinoma who again, due to a recurrence, is obliged to use the catheter. And third, the patient who comes without having had a surgical operation.

Regarding Dr. Perry's question about carcinoma. In the average patient, as he comes to the urologist, there is no difficulty in the recognition of carcinoma of the prostate by means of a careful rectal examination. Then, too, careful histological studies are made in each case.

I am in complete agreement with Dr. McKenna that this is not a simple easy procedure, and I feel it is extremely unfortunate that the idea seems to prevail that this is an office procedure that may be carried out between trains. I also agree with him that enough tissue must be removed to completely relieve the obstruction.

Dr. Corbus (closing the discussion): I want to thank the gentlemen for the discussion. It is rare that we have so many gentlemen present at one time who are experienced in trans-urethral resection. I think this symposium has brought out a great deal in regard to

the indications and contraindications, and the sequelae following resections.

Doctor Perry asked me about the depth of the burn that is directly under the tissue removed by resector. Experiments show that the spark gap current does penetrate deeper than that which is excised but this is not true of the radio tube, and this is the current that I prefer to use.

I have nothing further to add except this. If I had a prostatic who was a veritable derelict and who was not a good risk for a suprapubic operation, I would not consider him a safe risk for a trans-urethral resection. I have several old men, one who came to the hospital recently with a gangrenous foot. Suprapubic drainage was performed. He came back and had his leg taken off and now I am going to subject him to a suprapubic prostatectomy. I have never been in a hurry with any surgical procedure until I had my patient physically as sound as I could get him. I would prefer to send him home for six or eight months and leave a suprapubic drain in, and leave him at home until his heart was in good condition, and until he could at least walk around the block by himself. I think we should be careful in preparing our cases for operation no matter what procedure is adopted.

THE PATHOLOGICAL AND BIOCHEMICAL CHANGES IN PAGET'S DISEASE*

JEROME T. JEROME, M. D. AND EDWARD L. COMPERE, M. D.†

CHICAGO

The credit for describing osteitis deformans as an entity has been given to Sir James Paget[1] who in 1876 presented to the Medico-Chirurgical Society of London a paper "on chronic inflammation of the bones" with a summary of five cases. Among these was one reported by Wilks[2] 5 years previously. He had described it as "osteoporosis or spongy hypertrophy of the bones" and his is probably the first clinical picture of this disease recorded in the English language.

We wish to present comparative studies of the bio-chemical changes in osteitis deformans and those associated with hyperparathyroidism. This study has been occasioned by the controversy in recent literature regarding a possible common etiology for the two diseases. The comparison is based on the calcium and phosphorus content of the blood serum and the calcium excreted by way of the urine. As recently pointed out by one of us,[3] "the only definite test for parathyroid

Fig. 1. Photograph of Case L. B. showing the anterior and lateral bowing of the femurs.

gland hyperfunction is the calcium metabolism study and the demonstration of a negative calcium balance with an excessive calcium excretion in the urine." The high blood calcium in generalized osteitis fibrosa is in sharp contrast to

Fig. 2. Photomicrograph of parathyroid gland removed at autopsy from man, age 60, with Paget's Disease of 20 years standing.

the usual normal figure in Paget's disease while the ratio of the serum phosphorus is reversed.

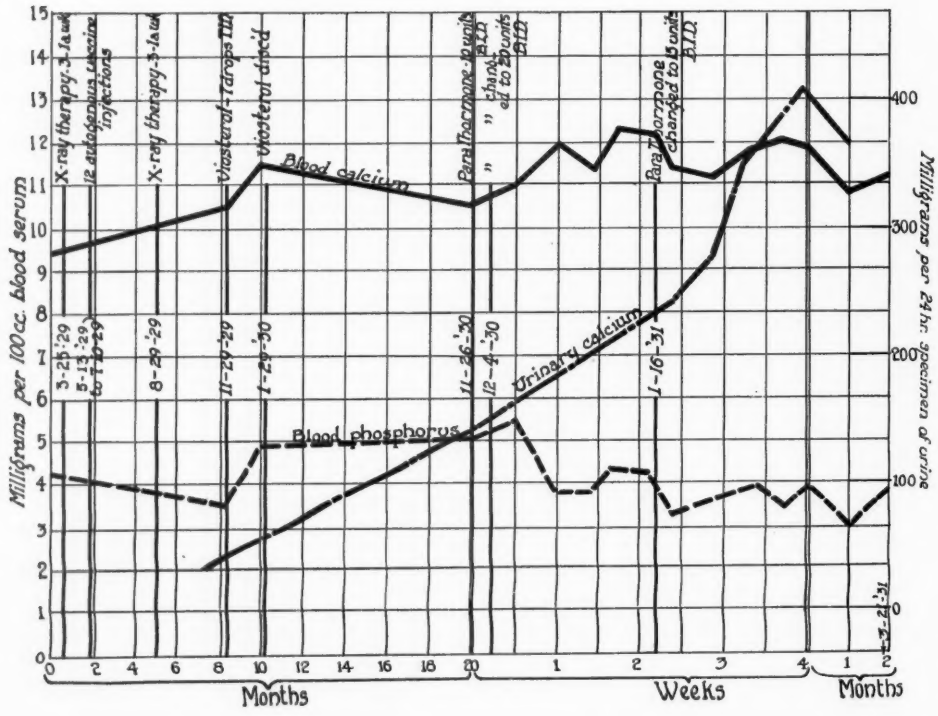
This contrast is best shown in 7 cases of gen-

†From The Department of Surgery, Division of Orthopaedic Surgery, University of Chicago

*Read before Section on Surgery of the Illinois State Medical Society, Peoria, May 17, 1933.

eralized osteitis fibrosa reported by Compere,[4] Hunter,[5] and Boyd, Milgram, and Stearns.[6] In these cases the serum calcium ranged from 12 to 21 mgm. per 100 cc. of blood and the average was almost twice that found in each of seven cases of Paget's disease and seven cases of localized osteitis fibrosa studied in the University of Chicago Clinics. In the last two conditions all of the blood calcium determinations were within the low limits of normal. In generalized osteitis fibrosa the serum inorganic phosphates ranged from 1.2 to 3.2 mgm. per cent. while the other two were 3.5 to 5.5 mgm. per cent. The higher figures were in cases of young children. The phosphorus ratio is thus reversed.

CHART I.



Case History: L. B., aged 57 years, male, came to the University of Chicago Clinics in March, 1929, complaining of pain in the lumbar region and bowing of the thighs of 20 years' duration. The symptoms had begun with mild pain in the low back and progressed until he had difficulty in walking or forward bending.

Physical examination revealed a middle aged white male walking with a peculiar slow shuffling gait with the thighs and feet rotated outward. (See Fig. 1). They could be rotated inward about 30° with some difficulty. There was marked bowing of both thighs, more so on the right.

The white blood count was 5,400, with 70% polymorphonuclear leukocytes, 24% lymphocytes and 6% transitional cells. The erythrocytes numbered 3,200,000. Urine examination was negative. Blood Wassermann and Kahn examinations were negative, and the basal metabolic rate was - 4.

Roentgenograms revealed marked anterior and lateral bowing of the femoral shaft with the cortex grossly thickened and encroaching on the medullary canal. Both trochanters had a cystic appearance and the ischial tuberosity was involved. The low dorsal and lumbar spinal regions and entire pelvis were involved with thickening, broadening and irregularly increased density of the bones.

He was given x-ray therapy, autogenous vaccines, viosterol and parathormone in succession. During this 2½ years his blood calcium rose slightly and the phosphorus level fell off a little, but all the determinations were within the range of normal. The striking feature was the urinary calcium. It was only 30 mgm. per 24

hours before treatment. The normal average is about 180 mgm. per 24 hours as reported by Bauer, Albright and Aub[7] in a large series of cases. This suggests the positive calcium balance so often found in Paget's disease in cases reported by DeCosta,[8] Van Hazel and Andrews,[9] and Rabinowich.[10] This is in sharp contrast to the marked calcinuria found in generalized osteitis fibrosa now thought to be due to hyperparathyroidism. The excretion of urinary calcium increased to 140 mgm. after 2 months of viosterol and then rose to 430 mgm. per 24 hours after 4 weeks of parathormone.

The true value of this treatment is difficult to estimate although there was some symptomatic improvement. Zimmer[11] has reported a case with clinical and roentgenological improvement following parathormone therapy.

The calcium balance in generalized osteitis fibrosa is definitely negative. The case of a woman, aged 59 years, with generalized osteitis fibrosa and an adenoma of one parathyroid gland,

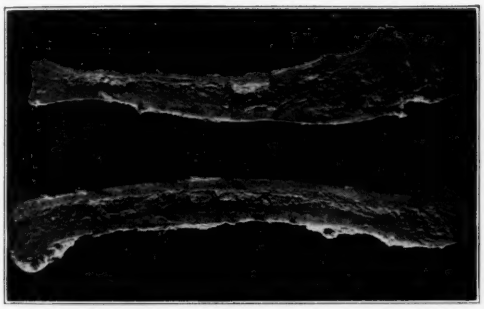


Fig. 3. The tibia and femur of a man, age 60, with Paget's disease for 20 years.

proved by operation, was recently reported by one of us.[4] Metabolic studies over a period of a week revealed a definite negative calcium balance. This negative calcium balance due to an excessive excretion of calcium by way of the kidneys is a characteristic finding in hyperparathyroidism.

A white male with Paget's disease of 20 years standing with typical x-ray findings recently *came to autopsy in this clinic. None of the* parathyroid glands were found to be enlarged. The microscopic sections (See Fig. 2) showed the cellular elements quite compact, many fat cells and foam cells, and a few acini could be *found. This microscopic picture was that of the* normal parathyroid gland as described by Erd*heim and Biedl.*[12]

The patient's bones were examined and there was involvement of both femora and tibiae. (See Fig. 3.) The bones were bowed and the cortex was thickened ranging from 1 to 2 cm. The bones were very heavy. The medullary canal

Fig. 4. At the top is the normal skull of a woman, age 52. Below on the left is a case of generalized osteitis fibrosa with a mottled appearance of the bones of the dome due to absorption. On the right is a case of Paget's disease showing thickening of the bones of the calvarium and many spherical areas of increased density.

was narrowed and the bone marrow contained an unusual amount of fat and fibrous tissue. There was a marked coxa vara in both hips due to a loss of tensile strength.

The x-ray findings of the skulls in these two conditions are shown in Fig. 4. In a case of generalized osteitis fibrosa in a woman, age 59, previously mentioned there were definite small rounded areas of absorption in the dome of the calvarium resulting in a mottled appearance

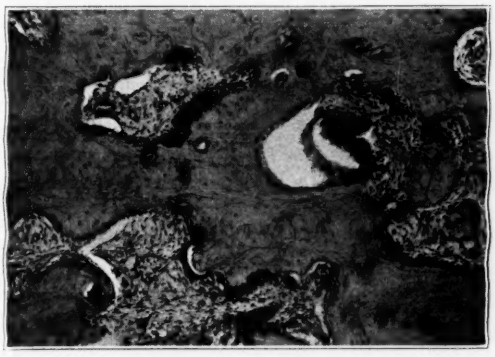


Fig. 5. Microscopic section of a biopsy of the tibia *in a man age 60 with pain in this region for 15 years.*

quite typical of this condition. When the skull in Paget's disease is involved the roentgenograms show thickening of the bones of the dome with

Table 1. Résumé of nine cases studied in the University of Chicago Clinics

Case	Date	Age	Sex	Symptoms and Duration	Bones Involved	Therapy	Blood Ca and P in mgm /100 cc. Before Medication Ca	Before Medication P	After Medication Ca	After Medication P	Remarks
W.B.	3-27-29	54	M	Pain in leg, bowing of tibia, 8 years	Skull, left femur, tibia	X-ray, 2 series of 3 each	8.97	5.71	8.93	4.16	Mitral stenosis 5 yrs. Increase local heat. L. tibia 3.6° (96°F)
C.S.	1-10-29	53	M	Pain in leg, low back, bowing tibia 20 years	Generalized	X-ray, 1 series of 3	8.99	3.82	11.62	5.4	Weak and nervous 2 yrs. B. M. R. + 42. Increased local heat. L. tibia 2½° (96½°F)
L.B.	3-13-29	57	M	Pain in low back and legs 20 years. Bowing of thigs 4 years	Generalized	X-ray 2 series autogenous vaccine. Viosterol 2 mo. Parathormone 9 mo.	9.54	4.26	12.2	3.75	One testis removed, age 37, for tuberculosis (?)
O.B.	1-18-29	64	M	Pain in right thigh 10 years and limp for 6 months	Pelvis and femurs	Parathormone units 15, B.I.D.	10.54	4.02	11.8	3.6	Mild diabetic for years
G.B.	4- 5-31	59	M	Pain and swelling left leg 15 years gradually increasing	Left tibia		11.5	5.0			Decompression. Osteotomy L. tibia 12-24-32 some relief of pain
B.B.	10- 7-29	55	F	Pain in low back, L. leg, bowing left femur, 20 years	Left femur	X-ray, 10 treatments over 10 months	10.65	4.7	11.5	6.1	B. M. R. —2
E.H.	2-25-31	59	M	Swelling left forearm 4 years bowing tibia 2 years. Pain right heel one year	Pelvis, femur, tibia, radius, left	Parathormone 15 units, B. I. D. for 2 weeks	10.1	3.56	11.0	3.7	B. M. R. —9
F.F.	11-30-28	67	F	Pain, bowing right thigh with limp 10 years	Right femur	292 1/75 grain phos. pills. 1 series X-ray (3)	9.4	5.1			About 1¾" shortening in 1928. 2¾" shortening 1932
H.C.	6- 7-32	59	M	Stiffness in legs 7 years. Pain in tibias 2 years	Skull, pelvis, femurs		10.9	2.4			

resulting increase in circumference. There are often many spherical areas of increased density. In many instances in Paget's disease the skull is not involved at all, while in roentgenograms of all cases of hyperparathyroidism which we have studied or reviewed this characteristic mottling of the calvarium has been noted.

A white male, aged 60 years, came in complaining of increasing pain and swelling in the left leg of 15 years duration. X-ray and biochemical studies confirmed the diagnosis of Paget's disease and a biopsy of the tibia was also done. The microscopic section (See Fig. 5) shows the trabeculae widened and thickened. There are many giant cells and the old bone is undergoing lacunar absorption. There are several areas of large, deep staining nuclei outlined on one side by a row of osteoblasts and on the other by an irregular serrated border. Thus we see bone destruction and new bone formation going on simultaneously. This is typical of Paget's disease with new bone formation greatly in excess of bone absorption while in generalized osteitis fibrosa the bone absorption is the predominant feature.

A resumé of nine cases of Paget's disease studied in the University of Chicago Clinics during the past 3 years is presented (See Table 1). The ages range from 53 to 67 which confirms the impression that osteitis deformans is a disease of late adult life. Each of the cases had pain in the low back or lower extremities. The calvarium was involved in only 4 of these cases. Various kinds of therapy were used but it is difficult to estimate the value of any of them. The average blood serum calcium was slightly below normal and the blood phosphorus slightly above before medication was begun. There was a slight rise in calcium and fall in phosphorus after viosterol or parathormone therapy was instituted.

Conclusions. There is no evidence that Paget's disease is caused by hyperparathyroidism. Biochemically it is characterized by a normal serum calcium and inorganic phosphate content of the blood; the calcium balance in the chronic phase

is markedly positive and the output of urinary calcium is very low. The parathyroid glands are usually found to be normal grossly and microscopically. In more than 40 cases of Paget's disease examined at autopsy by Maresch,[13] a tumor of the parathyroid could be found.

Generalized osteitis fibrosa on the other hand exhibits many opposites. There is a high serum calcium content, low plasma phosphates, marked increase in the urinary calcium and a negative calcium balance. In addition, a definite tumor of the parathyroid gland has always been demonstrated at operation or necropsy and removal of the tumor has resulted in improvement in symptoms and a return of blood chemistry toward normal in more than forty cases reported.

Billings Hospital.

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DISCUSSION

Dr. Vito Witting, Champaign: The paper we just heard is very clear, the information definite. In Paget's disease there are no significant changes in the parathyroid glands and no changes in the calcium metabolism and inorganic phosphorous in blood serum in the direction of hyperparathyroidism. Therefore, the suggestion advanced that an intimate relation exists between osteitis fibrosa cystica and Paget's disease is not warranted. Indeed this stand has been taken by anatomists on histopathological grounds and a common name has been forged for the two diseases "osteidystrophia fibrosa" as the fibrous changes in the bones are quite similar. However, Schmorl lately has been able to point out fundamental differences also in the histological picture. From a clinical, roentgenological and metabolic standpoint the two diseases are far apart. Osteitis fibrosa cystica after all is a generalized disease, all the skeleton being affected. No case has been described yet as being of Paget's disease in which every bone in the skeleton was affected. In osteitis fibrosa the osteoporosis is the main feature, the cystic changes may be lacking. The diagnosis can be suggested by the x-ray findings on account of the osteoporosis which is quite characteristic in the skull as can be seen very plainly in one of the roentgenograms presented by Dr. Jerome and which takes a peculiar appearance at the metaphyses of the long bones and in the phalanges whose contour is frayed due to subperiosteal absorption as pointed out by Dr. J. D. Camp of the Mayo Clinic. In Paget's as justly pointed out by Dr. Jerome we often have a periosteal apposition of bone which largely accounts for the increase in thickness of some of the affected bones so helpful in the differential diagnosis with osteoplastic metastases. In osteitis fibrosa cystica this finding is not present except in some cases at the site of a healed pathologic fracture. Following the suggestion of Snapper, a few years ago a surgeon took out one and in a second case two parathyroid glands from two patients affected by Paget's disease. Roentgenological, clinical and metabolic studies of the cases after operation for a sufficient length of time failed to show any changes in the course of the disease; which occurrence is quite at variance with the remarkable recoveries after removal of parathyroids or parathyroid adenomas in osteitis fibrosa cystica. I compliment Dr. Jerome for his exhaustive and many sided study and for bringing up further evidence that the two diseases are not related in the way it has been suggested; which is important not only from an academic standpoint but also for its therapeutic implications.

MENTAL HEALTH IN THE HOME*

CHARLES F. READ, M. D.

ELGIN, ILL.

The "home" in the sense of our discussion to day may be viewed as a life situation in which a man and woman have voluntarily placed themselves, because of a biological urge, as the result of which urge children are born, to be conditioned in their turn by the numberless stimuli arising out of this situation—a situation which they themselves materially modify as time goes on.

Home is a name for an interrelated group of the most fundamental experiences of life, the combined effect of which is vital for the child, because he is in a plastic state, except in so far as he may be the victim of some disorder, such as feeble-mindedness, dwarfism, hemophilia, early rickets, encephalitis, infantile paralysis, glandular, dysfunction, etc.

It is also a vital situation for the parents, because they are, to begin with, at least, still somewhat plastic. Their relationship to one another and to their children, calls forth concealed weaknesses, as well as potential resources. It encourages self-sacrifice and various other sublimations, because a fundamental mechanism in home life is the identification of the child as an extension of the parents' own selves.

However, *parental affection alone does not insure a good home. Sentiment is not a substitute for sense in making a home.* Nor can sense be divorced from sentiment as the Bolsheviks would do with an institutional method of raising children.

Feeling is paramount in our lives, no matter how we live them. The astronomer at his telescope and Michael Angelo painting his murals, are brothers under the skin. Feelings dominate us. There is no escape, except by learning to direct our more primitive desires toward ends which are accepted as lawful by the group as a whole. For example: The old time privateer, with his letters of marque, becomes today the financier, who keeps just within the law, a comparison now more readily appreciated than it would formerly have been. And, reversing the illustration, bear in mind that the *"Apaches"* of Paris, made good as soldiers, because war gave vent to their primitive urges.

Now, granting there are children in the home, how, in our humble opinion, ought they to be affected by their environment? *Everyone will agree that children are, to begin with, supreme egoists and that the business of the home is to socialize them, to teach them the value of behaving according to the standards of the group.*

Obviously, however, "the standards of the group" may cover various sub-standards of morality as they exist within the sub-group to which the particular home in question belongs. We have seen in the past fifteen years a marked (though possibly only a superficial) change in youthful behavior, the assertion of alleged independence of thought and action, as the result of changing attitudes toward the conventions of the older generation, together with impatience of discipline—in the widest sense of the term.

These attitudes, however, may well be within the pale of the behavior of certain groups of parents, who are themselves accepted by the larger group in which they live. By and large, youth does conform to standards. The inclination is present in spite of the denial. There are probably no more standardized products in America today than the third or fourth year fratman and his sorority sister.

Gradually, then, and even before diapers are removed, the child learns to behave like a human being. Unfortunately, however, to behave like a human being does not imply that one "trails clouds of glory" behind him. One may easily be so foolishly human as to epitomize the thought and feeling of an entire bygone epoch. Witness the 20th century derisive use of the terms *mid-Victorian* and *Puritanical*.. Don Quixote was "a beloved fool" because he had lived just a little too long, had lingered just a little too far behind the thought of his group as a whole. Contrari-wise, the foolishness of one age, or even of a single decade, becomes the wisdom of the next. The once ridiculed cry of the anguished mother *"I did not raise my boy to be a soldier!"* is now accepted in America to be the sober wisdom of an after-the-war world.

We must admit that thus far in our study of this business of making a home, we have found that a simple biological urge has created a rather difficult situation, directly involving several in-

*Address given before the Women's Auxiliary of the Illinois State Medical Society at the Century of Progress Exposition, Oct. 11, 1933.

dividuals—and who knows how many others indirectly—in a series of important adaptations.

First, there are life readjustments to be made by both principals, the father and mother, with respect to one another. These involve three levels of emotional life; which, however, cannot be altogether separated, because they are more or less continuous.

The first level concerns the primary instincts of self-propagation and self-preservation.

The second level concerns the development of these primitive instincts into socialized activities, in so far as this man and woman were able to accomplish this in their own home life when they were children.

The third level concerns the manner in which they have accepted recognized ideals and sentiments as valid for themselves.

The second and third level adjustments of the parents to one another, involve educational backgrounds and habits of thought—so-called convictions. They concern religious and ethical concepts; small town loyalties, such as thriftiness and "folksy" interests; big town ideas, relative to social prominence, financial advancement and intensive pleasure seeking; cultural cravings for satisfaction in music, art and literature; national and racial sentiments, etc.

Without a community of interests upon this second level and some upon the third level, a decent American home cannot exist for long. On the lower level there can be only a peasant or coolie sort of life. It is evident, however, that there can be little hope of an exact dovetailing of all lines of thought and sentiment on the part of any two people. What we can hope for is that *some* major interests and ideals will be held in common, and the remainder sympathized with, or viewed, at least with kindly toleration.

With the advent of children, the scene changes; new forces go immediately to work, such as the mother's reaction to:

Possible poor health, and impairment of personal appearance.

Closer confinement to the house.

Loss of regular occupation, if she has been a business woman.

Responsibility for the children's care.

The father's divided attention and affection.

And then we have, to top this off, not only the father's reaction to his own added responsibilities, but also his reaction to the mother's reactions.

Finally, as the children develop personalities of their own, we have to consider the parents' individual reactions to the children's reaction to the parents' attitude toward them and to the parents' behavior toward one another, as they, the parents, are influenced by this entire situation, *etc., ad. lib.* The situation finally becomes so intricate that only a most competent analyst may hope to trace the threads in this complicated pattern of emotional life in the American home.

Now, having considered the possibilities of this intricate interplay of personality reactions, what part does mental health play in the success or failure of the experiment? We speak of the personality of the experimentalists as being important. What is the structure of the personality anyway?

Roughly speaking, the ego, like ancient Gaul, may be divided into three inter-related parts:

1. There is *a primitive self* possessed of great energy. Because it is so closely related to the protoplasm of our physical structure, it is dynamic, just as the wild animal is dynamic, always seeking satisfaction in the direction of the instincts of sex and self-preservation. These elemental cravings do not fit in with our socialization program for the child. The child being an egoist, struggles for the love of the father, or mother—according to its sex—and freely desires the death of those who thwart its various wishes. Sex interest is satisfied in perverse, distorted ways, according to varying experiences in the home.

2. Nevertheless the *social self* must be built up, and as it develops, the primitive self retreats from view — into the unconscious — under the pressure of the socialization process, but does not lose its tremendous energy endowment, nor its selfish desire to have things its own way. It continues throughout life to seek its own gratification. The business of building up a social self that can carry on the ordinary affairs of life according to the rules, customs, habits, of those about it, naturally cramps the style of the egocentric primitive self—and may force the lid too tightly upon very potent, elemental forces.

3. Then in time there gradually develops a third portion, or level, of the self, known as *the super-self, or super-ego,* centered about ideals

based upon the various codes of ethics to which the developing child has been exposed.

However, it must be understood that in early life all three levels, or selves, are being affected simultaneously. The first few years of life—up to six or seven—are for this reason critical ones for the construction of the entire personality. Thus at home we may find queer notions, unhealthy ideas—charged with emotion—originating; *vide*:

A pathological attachment to mother or father.

Distorted notions to account for differences in sex characteristics.

Prudery—the feeling that sex is shameful.

Tantrums—imitations of parental misbehavior.

Undue interest in body functions and dysfunctions.

Too much fantasy life.

Fear and resentment as the result of nagging and domineering.

Distorted ideas of reward and punishment.

The entire procedure of child training, in and out of the home environment, when properly carried out, consists of a conversion of the primal energy possessed by the primitive self to social uses by the substitution of objectives which are in line with elemental cravings, but which are compatible with group standards. Thus the steps in the normal development of adult sexuality may be roughly stated as:

1. The utterly free pleasure-taking of intra-uterine life.
2. Self-love—Narcissism and exhibitionism.
3. Mother-love—the Oediups complex.
4. Teacher-love. Transfer to another older member of the opposite sex—puppy-love.
5. Extra-marital relationships—frowned upon by Church and State.
6. Courtship—desire for one special woman.
7. Marriage—which may be postponed because of associated ideals demanding assured support for wife and children.
8. Gratification for the purpose of propagation, held by Church and State to be highest type of sex activity.
9. Various sublimations, such as becoming a teacher or nurse.
10. Ideals of service requiring self-denial and even celibacy.

A similar account might be given of the steps in the regulation of the instinct of self-preservation.

Such is the manner in which we may learn to behave like ordinary human beings. Unfortunately, the system seldom works smoothly to effect a perfect product, because at various steps in the process growth may be interrupted and stunting occur. As a matter of fact, *maturity is never achieved throughout the entire personality—though stunting may not always be apparent.* Thus the Oedipus complex, a normal affair at one time in the youngster's life, may not be resolved into ordinary love desires. The man may marry, but does not adjust satisfactorily to the situation; or he remains a bachelor—*vide* the character of Charley in *"Strange Interlude."* Transference to the opposite sex may never be accomplished. Self-love — Narcissism — may never yield to interest in others. Such a person will remain at heart a-social, because everything he possesses is too highly prized. Homosexual interests may predominate. Ideals and sentiments upon which society thrives may not be actually assimilated to the personality in the form of a super-ego, but be viewed merely as the opinions of others, with no actual validity for one's own conduct, *vide* the psychopath. The dominated child may develop an inferiority feeling and may compensate by acting in the same way toward his own child later on.

Such are in brief the reasons why many people fail to behave well when subjected to extra stress and strain.

How now, in view of what has been said, shall parents conduct a home for the satisfactory socialization of children and their acquisition of fine ideals? Obviously the answer is that the parents themselves should have been brought up in just such a home. Some fortunate children have a set of parents who possess all of the fine attributes which go to make the individual who is 90 per cent. mentally well. (No one can possibly be 100 per cent.) If their children marry others as fortunate, the matter is attended to at once, barring unfortunate atavistic accidents.

But with things as they are and people marrying just as they please (and as they probably always will) we shall have to place our hope for a long time in the enlightenment of adults. In a general way this education may embody the knowledge that:

1. *Home* is a complex situation, charged with emotions and all their potentialities for good and evil.

2. Affection is a beautiful thing and a great aid to homemaking, but not a substitute for "mental-health sense."

3. A "good" home may be a bad home for a child because there is in it too much solicitude,

nagging, fretfulness, domineering, clinging motherhood, sex prudery, or intolerance.

4. There is always at work within us and our children the urge to seek immediate gratification of primitive cravings.

5. We should endeavor to substitute for these, other satisfactions which are socially acceptible — even though we have to become a policeman in order to handle a billy and a gun, or a nurse so that we may tell people just what they can and cannot do.

6. Awareness of our own weakness is the beginning of wisdom in home-making.

7. The child does not usually inherit faults of personality, but acquires them from those about it—and for the most part from the parents.

8. A child is as receptive to the influences about it as is a photographic plate to light, and as easily damaged by improper exposure.

9. There is evident in the growing and maturing human being a certain force, call it Nature, or Spirit, as you will, which directs development toward normality. The business of the home is to take care that as little as possible be said and done to interfere with this procedure, and that what is attempted by way of positive direction be carried out with intelligence, as well as with sentiment.

A PHYSICAL AND MENTAL HEALTH PROGRAM FOR A CUSTODIAL SCHOOL*

LOWELL S. SELLING, M. D., PH. D.

CHICAGO

The director of the State Department of Public Welfare requested that the writer make a survey of, and suggest corrections in, the physical and mental health programs at the St. Charles School for Boys, at St. Charles, Illinois. The significance of this study lies in the possibility of the application of certain of its findings to other similar institutions and even to those not corrective in character. The immediate purpose of the study was to discover what could be done to improve the general health conditions of the institution.

The physical health of the inmates at that time was very well cared for. The physician in charge was a health officer and the incidence of illness was not great. Only a large number of mild respiratory infections and small traumata were noted. The whole purpose of a corrective institution should be to restore to mental health the offender but aside from the corrective aspects there were some features of a general mental health program which can be applied.

On the physical side the first step was to see that all the immunological techniques which were available were used. It was found that the boys were being vaccinated, were receiving typhoid and paratyphoid innoculations, and were being given diphtheria toxin-antitoxin routinely upon admission. At the time that this study was undertaken there had been a small epidemic of scarlet fever lasting for about two weeks, with about eighteen cases among the 800 boys. Shortly after this study was begun Dr. Dick gave a scarlet fever test to all of the inmates, and those who were found to be susceptible were given immunizing doses of the scarlet fever serum.

It was found, strangely enough, that for a number of years Wassermann tests had not been given to the boys routinely. Twenty-five cases of syphilis were disclosed by a complete testing program. These were all cryptic cases which would not be revealed either by the history or by the physical examination. All of the children were examined shortly after their admission to the school, usually during the first week. This admission examination consisted of a routine physical examination and urinalysis. If the chest findings were such as to require it, an x-ray of the chest was made and the sputum examined. An effort was made to sift out from the general run of boys those who had contagious diseases or who required physical correction. It was found, also, that the boys were generally in good organic condition but physically there was a tendency for them to be slightly underweight and to appear puny. The St. Charles School is equipped with a hospital and there was no hesitancy about calling in specialists when a consultation was needed, as for example, in eye, ear, nose and throat cases.

Beyond the individual health examinations the assistance of the state sanitary engineer was requested. It was found that the school had been

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examined, particularly regarding the water supply, in 1926, and certain recommendations were made. We checked to see whether the suggestions which were made at that time had been carried out and found that they had been. However, as a special precaution samples of water were sent to the state sanitary engineer for examination and were found to be within normal limits except for a high mineral content. Arrangements were made so that the hydrant and water sources would be tested periodically.

One of the uses of the water was in a swimming pool. This was an antiquated installation and five days' use of it revealed the water to be so bad and the bacterial content so great that there was no need to make a count. There was no question but that a filtration or sterilization plant needed to be installed and a recommendation was made to this effect.

There were many personal hygiene features to be considered. It was suggested that periodic stool examinations be made of those who handled the food even though everyone was supposed to be immunized against typhoid fever. The barns were to be inspected and although it was found too expensive to run a certified dairy the cows were all tuberculin tested. A careful milking technique was urged as was also pasteurization of the milk. Over a number of years there have been no cases of illness which could be traced to the milk supply, which fact implies a satisfactory condition of that food.

Another matter which was held under consideration was the matter of isolation of new admissions. Theoretically, a three weeks' period of isolation is maintained, but since new admissions are few it frequently happens that new arrivals are placed with a group of boys who have been in isolation for some time and are therefore about to leave. For this reason the suggestion was made that the boys be kept in groups according to the day, or at least according to the week, of their admission, so that incoming boys would be segregated from those who had been in isolation two weeks. It was also recommended that if a case of contagious disease appeared in a group that group should be kept in isolation for the necessary length of time. If a contagious disease arose cottages were kept under quarantine except that adults were permitted to come and go. A recommendation was made that this exception be discontinued.

It is very difficult in a large school organized for corrective purposes to see that a regime of personal health is properly carried out. The food should be balanced, have proper vitamin content and be palatable. It has been this report's experience never to find such a regime adequately maintained in a large corrective school. In some schools, nevertheless, much more attention is given to it than in others, and the best that can be hoped for is a minimum of inmate labor in the kitchen combined with a maximum of training and experience on the part of the cook. It is necessary, too, to have proper kitchen equipment.

The clothing was conservative and found to be adequate. However, a mental health problem came up in the question of uniforming children. To a child in a corrective institution the uniform places the stamp of criminality upon him. In a military school, on the other hand, the uniform undoubtedly builds *esprit de corps* which one must approve whether he feels in sympathy with military aims or not. We stressed fresh air and sunshine and emphasis was laid upon the importance of every child's having at least eight hours sleep at night, and that those who were not robust should have a short rest period in the afternoon. It was suggested that careful supervision should be made of rest hours and that in a school of this kind there should be no undue effective excitement or disturbance during sleeping hours. It was urged that the majority of boys should spend some of their days actively in the open air and that free ventilation be maintained in the dormitory. It might be asked why it should be necessary to recommend such simple procedures. The answer to this is that the boys, if given much freedom, are likely to escape, and many supervising employees would prefer to infringe upon the rights of personal hygiene rather than to run the risk of losing a charge.

At the specific suggestion of the Director of the Department of Public Welfare an attempt was made to give every boy of the school 20 minutes of gymnasium work and 20 minutes of swimming each day. This was found to be very difficult but by a careful change of routine, quick adjustments of individual attitudes and by in-

creasing the size of the groups engaged in physical activity the problem was solved.

It may be asked what could be done on the mental hygiene side if the school was properly functioning. There is always some question as to what constitutes the proper functioning of a corrective institution. It was necessary in this case to decide that there are other elements beside the corrective and training features which could be studied and possibly improved. For the time being, the actual school and teaching service was not surveyed. The building was known to be properly constructed and the teachers were experienced in dealing with delinquent boys. A quick survey of the school building did not show any unhygienic conditions from the physical standpoint, although the highly standardized educational system in use is open here, as it is in many city schools, to question. One feature which was distinctly bad was the fact that during the boys' stay in school their idea of the world was circumscribed. They were learning nothing except what they could from their companions and from the school and had very little contact with the outside world. For this reason an arrangement was made for educational moving pictures to be shown each week. This means was also used to give the boys sex information. It was not considered advisable for the psychiatrist to give a lecture on sex alone, but good films on this subject were presented to the boys. There was a valid objection to this as a continued procedure, however, since funds were not available. Nevertheless the Y. M. C. A., various government and state departments and some universities furnish educational films at a nominal rate. These films were chosen with a three-fold purposes: 1, to arouse interest in choosing a future vocation; 2, to keep the boys entertained and therefore out of mischief; and 3, to act suggestively as a counter reagent to crime. A second mental health feature which was recommended was a system of socialization. Intramural games with emphasis on sportsmanship, clubs, and other types of group activities were encouraged. It was found that many of the employees had a particular interest which they were able to use in dealing with the boys and this was supplemented by Scouting and similar activities. It has, of course, taken a long time for all of these recommendations to be installed. There are a few which have not yet developed after a period of almost two years, but even during the early months of the installation of these plans a change in the attitude of the boys could be noticed. The installation could be, by no means, complete, for volumes have been written on each one of the special topics mentioned above, and it would be optimistic to think that we had more than scratched the surface in our recommendations for a mental and physical health program; nevertheless the foregoing discussion may be of use to others who are considering similar public health activities.

DISCUSSION

Dr. S. B. Meyerson, St. Charles: The present health program at the St. Charles School for Boys is designed to meet the needs of a state institution administered by a layman, with a population of five hundred to six hundred delinquents of presumably adequate intelligence, ranging in ages from ten through seventeen years whose initial length of stay is usually from twelve to eighteen months.

The physical and mental health service functions as an autonomous unit under the direction of a psychiatrist who also does the medical work. He is assisted by a psychologist, two graduate nurses and a clinic manager. The dental work is done by a part time dentist. This unit also avails itself of the facilities in the medical and surgical specialties offered by the neighboring state institutions such as the Laboratory of the State Psychopathic Institute at Elgin, The Illinois Eye & Ear Infirmary and the Research and Educational Hospital in Chicago. This arrangement combines economy and efficiency of medical service in an era of financial depression.

All new admissions and recidivists are segregated in two separate receiving cottages during their first two weeks at St. Charles. Immediately following their admission, a complete physical examination, urine analysis, and an initial psychiatric interview and evaluation are made. During the course of the first two weeks, the following additional procedures are carried out: Vaccination against smallpox, blood Kahn and Wassermann reactions, Dick and Schick tests and immunization of susceptible patients, and any urgent psychiatric and medical treatment indicated is begun. As complete a social history as can be elicited by an interview with the boy is obtained and additional information relative to the boy's past history is requested from the community. An individual psychological examination, a group intelligence test, and a complete achievement test are given routinely to all admissions. Once or twice a week a staff composed of the managing officer, psychologist, school principal, director, director of home training and the psychiatrist reviews the material that has been obtained and makes recommendations concerning the medical treatment, school and vocational placement and such additional treatment and study as is deemed

necessary at this time. The boy is also called into the conference and if he expresses dissatisfaction with the recommendation of the staff and can give adequate reasons for his difference in choice for training and cottage placement than that made by the staff, the recommendation may be changed. Recommendations as to the probable necessary period of detention and conditions for the boy's release for parole are also made at this time.

Boys who become adjustment problems in the institution are referred to the Health Unit for further study. After reports on these cases are obtained from the institution personnel who come in daily contact with the boy, further psychological and psychiatric study is made and a report of our findings with recommendations is submitted to the managing officer.

In May, 1932, a thorough study was begun of all the mentally deficient inmates. All boys who have been found to have an intelligence quotient below sixty on repeated psychological examinations and all parole violators and institution behavior problems with intelligence quotients in the low seventies or below were interviewed by the psychiatrist, their records reviewed and such additional psychological and social material and medical data as was deemed necessary in a proper evaluation of each individual case was gathered. Of those studied, fifty-four were found to be uneducable defectives and were recommended for commitment to institutions for feebleminded. Three of the inmates were found to be suffering from encephalitis and their further detention at this institution was considered inadvisable. Space does not permit to cite case histories as an illustration of the type of boys whose exclusion from a school for juvenile delinquents was felt advisable.

The health officer also advises the managing officer regarding matters of hygiene and sanitation and the recreation and physical education of the inmates.

A physical and mental health program is not complete without the element of organized play. That a lack of adequate recreational outlets frequently results in discontentment, emotional conflicts, a social behavior and criminality is universally conceded. Histories of the social backgrounds and conditioning of many of our boys support this theory. The instruction in various play activities as part of our program of re-education has as its objective to arouse the boys' interest and to give them an opportunity to become proficient and excel in certain recognized group activities so that they may continue to make use of these outlets in preference to antisocial behavior when they return to the community.

An athletic director who has two assistants is in charge of all organized play, which consists of outdoor play activities and the activities in the gymnasium and swimming pool. Life within the cottages is under the supervision of the supervisor of home training who sees that the cottages are provided with adequate play material and recreational facilities for the evening leisure hours and holidays. During the five school days of the week, from eight to ten academic classes go to the gymnasium each day for organized play which consists of basketball, volley ball, baseball, indoor baseball and improvised games. This arrangement permits each boy regardless of size and age to participate in the program from thirty to forty-five minutes daily. Inter-cottage baseball and basketball are exceedingly popular. School teams are chosen from the cottage teams and a limited number of games are played with outside teams. Football is also a seasonable activity. "Games are played each year with the Wisconsin Industrial School of Waukesha."

The evening activities permit each boy on good behavior to go swimming once or twice a week and to enjoy a talking picture entertainment once each week. We also have a school band, an orchestra and vocal class who participate in the entertainment programs.

The swimming pool which had not been in use for many years was re-opened last June through the efforts and cooperation of the managing officer. The water entering the pool which flows continuously from a natural spring, is disinfected by chlorination and is tested daily at the institution laboratory for its content of free chlorine. A sample is also sent to Springfield at frequent intervals for a bacteriological examination. The pool is drained, cleaned and refilled with fresh water every two or three weeks. All boys, with few exceptions are permitted to use the pool during the entire year, once or twice a week for thirty minute periods. Each boy is required to take a shower bath, using soap and to walk through a pan containing a solution of chlorinated lime before he enters the pool. The rules of the pool are rigidly enforced, the boys being deprived of their next swim for violation of the rules or misconduct. Most of the boys react favorably to this plan and it is rare for a cottage to lose a swim. This is now the most popular form of recreation.

The medical work of the institution is done in a thirty bed hospital building which is equipped for dispensary service. About forty to fifty boys call at the dispensary daily for treatments. In an institution of this type, where nearly six hundred children come into daily contact with one another, the prevention and control of communicable diseases constitutes one of the most important problems of the medical officer. The physician has to be on constant guard against the dissemination of contagious and communicable diseases, by the early recognition and treatment of individual cases. In spite of the routine prophylactic measures employed, sporadic cases occasionally occur, particularly in new admissions, who either harbor a contagious disease or have been recently exposed to infection. It is gratifying to note that during the past twelve months, we have been practically free from acute communicable diseases. Out of a total of four hundred seventy-six patients confined in the hospital, there was only one case each of pneumonia, diphtheria, and scarlet fever. The diphtheria case was that of a new admission who had been in the institution only a few days, while the boy who developed scarlet fever had received a course of scarlet fever immunizing treatments five months previously (November, 1932). Although the rash and ex-

foliation were typical, he had only a mild angina and showed very little evidence of toxemia. The incidence of venereal diseases is probably not higher than that in the general population. During the year we have had nineteen cases of syphilis, probably all of which were congenital, and twenty-six of gonorrhea. All active gonorrhea cases are isolated in the hospital until a clinical cure is effected.

Special attention is given to boys suffering from malnutrition and those who have visual defects and chronic ear diseases. Sixty-one boys were furnished with glasses during the course of the past twelve months.

In the care and study of a group of adolescent delinquents, endocrine factors must not be overlooked. Although possible abnormalities of the gonads, pituitary, thymus, pancreas and adrenals should be considered and an attempt made to treat them, if discovered, hypersecretion of the thyroid with its associated increase of pressure of activity and nervous instability is perhaps outstanding in its frequent association with behavior disorders. Out of the five known cases of toxic goiter now in the institution with basal metabolic rates ranging from 19 to 49, thyroidectomies were performed on two. One of these, in addition to the classical symptoms of thyrotoxicosis, exophthalmos tremor, enlarged thyroid, tachycardia, palpitation, dyspenea, abdominal distress and nervous instability—had developed mental symptoms bordering a psychosis and attempted suicide on one occasion. This boy, who had been a patient in the hospital since the day of his admission, has shown an almost miraculous improvement in his physical and mental health following a thyroid operation. He is now carrying a full program of academic and vocational training without any signs of fatigue or irritability and should soon be able to resume his place in the community.

The great difference of the individual boys as to age, size, intelligence, abilities, interests, personality, social conditioning and delinquency careers makes the difficulty of any institutional program for their training and re-education apparent. Each boy must be treated according to his individual needs and differences. The necessity of a properly qualified health officer who is capable of combining and integrating the work of physician and psychiatrist and the importance of the cooperation of an intelligent managing officer and institution personnel in carrying out an efficient health program cannot be over-emphasized. As it has been effectively expressed by the St. Charles advisory council, it is the ultimate aim of the administration that the purpose of the institution as a whole be lifted from the level of punitive and custodial care (such as institutions of this type are generally considered), to the basis of scientific diagnosis and treatment.

Dr. Charles C. Rowley, Dixon: It is rather difficult to discuss these two papers in view of the fact that the authors haven't made any extravagant claims for their program. They simply stated the facts as they have tried to outline them in their own minds and to go ahead and do what they could with their program. It seems to me, that our knowledge of hygiene, sanitation and medicine is so extensive that a program of physical care in the institution isn't a great problem, with two exceptions.

The first is to get the cooperation of the executive head. I well know that if you don't have that your program falls flat. And the second is to adjust the knowledge we all have of hygiene, sanitation and medicine to the physical structure of the institution and its environment.

If the executive head is medically minded, he will understand your purpose and he will cooperate and will see that the heads of various departments cooperate. If they don't do that, the patients do not benefit by the program. Quite often in these institutions, as you all know, the head is simply a man who has been of value to his party during the last election. He is not trained in the science of running an institution.

Dr. Selling mentioned the fact that many of these children are under weight. I wonder if that can't be explained by a couple of well known simple facts, one being that the average mental defective, and the average defective delinquent, is smaller and not up to par physically, in comparison to the normal. I think about 40 per cent. of the St. Charles population are under normal mentally. Another point is that these children have come through a recent emotional stress. They have gone through a series of delinquencies. They generally come from poor homes. They probably haven't been well fed or well taken care of, the personal hygiene at home has been neglected, and possibly they have been in jail for several days, or they have been in a detention home, or in foster homes where they have been neglected or abused, possibly, or in hospitals and clinics. These children are not happy; they have no feeling of personal security. Any of us will fight or lie or steal or sometimes even kill for that most precious possession, liberty, and you can hardly blame these children.

The problem of segregation must be considered in these institutions, and it is an impossibility in nine-tenths of them. You have to segregate as to age, physical size and strength, color, sex habits, duration of antisocial behavior, physical health and mental age. If you will find an institution in any State that is large enough to provide cottages for those various groups, and employes intelligent enough to carry out the program, I would like to know where it is.

There is not any mental health program which we can call the standard. One that works in this town would not work in Rockford and would not work in Chicago or elsewhere. There are so many elements in the community that have to be considered; your group controlling the program and your group to be controlled. Like the physical health program, the mental health program depends again largely on the attitude of the heads of departments, the head of the institution and the employes. If they are all sold on the program, everything is rosy. If they are jealous, if they think that it is high-brow stuff, that you are usurping undue authority, that it is a waste of money,

that a brother-in-law or two brothers-in-law ought to have jobs instead of you, you are out of luck.

The ordinary mental program depends first upon the cooperation of the community, represented by the charitable and social organizations in that community. Those organizations may be able to mould the environment so that it is suitable for the children in the group, and the adults as well. They may be able to establish parks, clubs or playgrounds, boy and girl scout movements, parent-teacher associations, etc.

Second, you must have a home in a mental health program, and the home must cooperate. You must get the parents and the relatives to cooperate. It is rather difficult to tell a fond mother that it is all her fault that this child has a behavior problem. It is possibly over-indulgence and possibly indifference on her part, and the grandmother and the grandfather, and the uncles and aunts, and so on.

Third, you must have a school and a good school. There again you have to get your teachers to cooperate, you have to get the teachers to give the right ideas, which I don't believe they have done, according to the previous paper.

Fourth, I feel you must have a church in the community.

In other words, I think we have to have four things in this work. First, the community environment; second, the home; third, the school; and fourth, the church. Maybe you could reverse it; I don't care; but you need all of them.

And, to me the success of a mental health program in an institution seems to rest largely on the ability to find proper substitutes for these four things, the school, the church, the home and a good neighborhood environment. Maybe a medical meeting isn't the proper place to talk about churches, I am not mentioning any denomination, but I do feel that, in order for a person to become a well-rounded, useful citizen in this country, he must have some church or at least some religious instruction. Possibly I am a Pollyanna. I had a friend, a psychologist, who came to me. He had a child of about four. He said, "Doctor, my little girl has asked me about God, and I don't know a thing about it. I don't know what to tell her." I feel that man needed some religion himself.

I think the personal qualifications of your mental health officer is of very great importance. If he is to succeed in the work, he must not let himself become angry or upset if patients or inmates lie to him. If I was locked in a cell, I would lie myself. If you are going to lose your temper and get angry and say, "You can go to" some place, "I will not have anybody lie to me," if you will just take stock of yourself, you will find that nine times out of ten the bad behavior of the child or person that aggravates you most is the very thing that in your own heart and soul bothers you most.

Dr. Lowell S. Selling, Chicago, (in closing): The most essential thing to the working out of any of these programs is cooperation. It is difficult to get that from lay superintendents so that we have been very fortunate in having a program such as Dr. Meyerson has outlined. I still feel, and he does too, that there are many things that we could carry out in a school of this sort and that other schools could do even better, and I feel the factors were very nicely pointed out by Dr. Rowley which we have to look after in such a program.

HEALTH ENGINEERING*

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The application of engineering principles to health protection has undergone a rapid development during the past few years. From the time of the ancient Romans, when great aqueducts were built to bring pure water from the mountains to the cities, until comparatively recently, health engineering was largely limited to housing, water supply and waste disposal.

Since the discovery of germs as factors in the production of certain diseases, water purification has been put upon a highly scientific basis. The development of modern methods of treating sewage accompanied the advance in guarding the safety of drinking water. The discovery that yellow fever and malaria were spread by mosquitoes gave the engineer another field of usefulness in preventing disease. The protection of milk against dangerous contamination has afforded the health engineer still another opportunity, in the design and supervision of pasteurizing and bottling machinery.

New building styles, involving towering skyscrapers and new materials, have presented new problems of supplying light, air and water, and removing sewage, garbage and foul air, which require engineering skill of a high order for their proper solution. Increasing congestion in urban centers has given the health engineer additional worries about city planning, zoning and overcrowding, while the use of machinery and radios in these densely populated centers has produced the increasingly difficult problem of noise control.

The smoke has been so unbearable in many areas that engineers have also been called upon to abate that menace to health. It seems that whatever there is in our environment, misman-

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agement will create or aggravate a hazard to health. Very often the difficulty is of such nature that the engineering approach to the problem is the one most likely to afford relief. It is the preventive rather than the curative viewpoint.

One of the most recent advances has been in the field of air conditioning, producing, by mechanical means, any climate desired.

The engineer has now been called upon to enter industry and apply there the scientific principles which have proved successful in other fields. Industrial hazards to health are largely environmental in character. They involve toxic dust, gas and fumes in the air that is breathed, toxic solids and liquids that are handled and may be absorbed through the skin, bacteria, noise, vibration, electricity, light and short wave-length energy.

A few examples will illustrate. Lead or silica dust, carbon monoxide gas and chromic acid fumes are hazards in the air that workmen may breathe. Phosphorous, a solid, and benzol, a liquid, are familiar examples of these classes of hazardous materials, while anthrax is representative of the bacteria, especially associated with industrial dangers. The noise and vibration of punch presses have certain harmful effects, while bright lights, as produced in welding, may damage the eyes unless shielded.

The job of the health engineer is to determine the source of the dangers and how best to overcome them. In the case of poisonous materials, the approach depends upon one thing. The mode of entry of the poison into the body must be determined before preventive measures are worked out. Substances entering the body through the respiratory tract are gases, fumes and fine dust, which can be controlled by proper methods. Gases fall into four groups, each with its characteristic physiological reaction.

1. Asphyxiants may be of two kinds. One kind combines with the hemoglobin of the blood, or with tissues, in such a manner as to prevent the utilization of the oxygen in the air breathed. There are a large number that may be encountered, among which carbon monoxide and hydrocyanic acid are perhaps the best known. This kind we call chemical asphyxiants. The other kind (simple asphyxiants) in high concentration excludes oxygen in a mechanical manner, without any marked physiological effect of its own. Nitrogen, helium, and hydrogen are examples of simple asphyxiants.

2. The second group may be called irritants, producing inflammation of the respiratory tract. Ammonia, sulphur dioxide and chlorine are familiar irritant gases.

3. The third group includes volatile drugs, which do not directly attack the lungs but which exert their anesthetic effects after they are absorbed into the blood. Methyl chloride, ethylene dichloride, nitrobenzene and carbon tetrachloride, are members of this group that are widely used in industry.

4. The fourth group comprises inorganic and organometallic materials which exert a poisonous effect after absorption. Mercury, hydrogen sulphide and tetraethyl lead, are typical of industrial poisons of this group.

The dusts and fumes are of greatly varying importance to health, depending upon their physiological effects. Some harmful ones cause fibrosis of the lungs, replacing elastic lung tissue with scar tissue. Dust containing silica and certain non-poisonous metals, has this effect and probably a slow acting toxic effect as well. Lead, arsenic, mercury and chromium dusts and fumes have a directly poisonous effect.

The health engineer deals with these gases, dusts and fumes by preventing their formation, as far as possible, and collecting them close to their point of origin, when they cannot be entirely prevented. Local exhaust systems draw these gases and dusts away from the breathing zone of the workers as fast as they are produced. They should be discharged with a due regard for the health and comfort of the neighborhood, for otherwise the hazard is only removed from a group of employees to harass another group of nearby residents.

Often, quite unexpected things result from unforeseen conditions. Dichlorodifluoromethane, a relatively non-toxic refrigerant, which has lately attained considerable prominence, may decompose in the presence of a flame, forming the dangerous wartime gas, phosgene. A carbon tetrachloride fire extinguisher, if used in an atmosphere poor in oxygen, may permit the formation of the same substance. The health engineer learns to recognize these possibilities and guard against them. Very often, prevention of

danger may be accomplished by changing from a hazardous substance to a safe one which will do the work required. Examples are the substitution of toluol, xylol and petroleum distillates in place of benzol, as a solvent in lacquers and enamels, and the change to lithophone or titanium oxide instead of lead in paints.

Presumably as research continues, many other toxic substances will be replaced by non-toxic ones. Unfortunately, the substitution process sometimes goes the other way, in the absence of the health engineer, creating a health hazard when none previously existed, or making an existing danger worse.

The change in the dry cleaning industry from using Stoddard's mixture, composed of various hydrocarbons, to carbon tetrachloride, had the effect of lowering fire insurance premiums and, therefore, the substitution was made. On the other hand, a definite health hazard was introduced, caused by breathing the vapors of the carbon tetrachloride, by the workmen. Then the engineer had to step into the breach and redesign the washers or tumblers, installing local exhaust systems, in order to protect the workers against the new danger.

The type of exhaust system to be employed depends largely upon the specific gravity of the poisonous material to be removed. Thus, a gas heavier than air, such as carbon tetrachloride, which naturally drops to the floor, should be removed by a downward exhaust, making use of its natural direction of movement to assist the mechanical devices.

In chromium plating, tiny droplets of chromic acid are thrown up into the air above the plating tanks by the bursting of bubbles of oxygen evolved at the anode. This spray must be kept out of the breathing zone of the workmen if nasal ulcers are to be prevented. This purpose is accomplished by placing exhaust openings at the sides of the plating tanks, which cause a downward current of air over the tanks to sweep the chromic acid into the exhaust system.

Now what becomes of these collected materials after they enter the ducts? Dust and fumes may be collected by cyclones, scrubbers, bags or cottrell precipitators—the latter making use of the attraction of opposite electric charges. Cyclones are the cone-shaped devices that one sees on top of factories. The air stream enters this sort of collector in a tangential direction and the centrifugal force of the whirling motion flings the particles to the side, freeing the air of them before it leaves the cyclone.

Fumes of acids can be collected in a scrubber using water where they are soluble, or a neutralizing alkaline wash where ordinary water is not suitable. These scrubbers are frequently towers filled with bricks, coke or similar material, over which water trickles.

Gases and fumes of combustible nature, such as many organic solvents, are sometimes burned in the boilers, by blowing the mixture of air and fumes through the fire box. Where this is done, care must be used to prevent flashing back of the flame through the duct system, by installing suitable fire arrestors.

Bag systems are of many kinds. They have the disadvantage that as the pores of the bags become clogged with the collected materials, a back pressure is built up which reduces the volume of air handled by the exhaust system—this in turn reducing the air velocity at the exhaust opening which is depended upon to pick up the toxic materials. To combat this difficulty, mechanical shakers or compressed air blowers are often provided, to dislodge the particles and reopen the meshes of the bags. A recent installation of this kind of equipment in a brass smelter, for the purpose of collecting zinc oxide dust, has nearly paid for itself in two years' time by the value of zinc oxide recovered, besides abating a serious neighborhood nuisance.

Often it is not economically possible to build a collecting system that will entirely remove the hazard to health. Here it becomes necessary to supplement the exhaust system with protective masks, of which there are many kinds and varieties. A sand blaster working on castings in a booth may be fairly well protected by a local exhaust system, but the man cleaning the face of a building with a sand blast frequently must rely upon a mask for proper protection, both to his eyes and lungs. A spray booth may give adequate protection to a workman spraying automobile parts or furniture with enamels or lacquers having a toxic solvent, but the workman spraying the Hall of Science at the World's Fair cannot put it in a booth.

A notable development in recent times in masks, has been the production of direct pressure

masks supplied with air under pressure taken from a pure source. The control of the air pressure is in the hands of the workman himself, and the masks are so designed as to create a current of air across the inside of the goggles to prevent fogging.

The suppression of noise through better design of machinery has been another contribution of health engineers to the well being of workmen in various industries. Where vibrations are unavoidable, as in stamping and punching, much has been accomplished, and much more remains to be done in the provision of foundations which will absorb vibrations and prevent their transmission to structural members of the building, which may act as sounding boards.

Adequate lighting is of great importance in preventing fatigue and in avoiding accidents. Short wave length energy, whether it be in the form of cathode rays, such as x-rays, or in the form of radio-active emanations, such as one gets from radium and meso-thorium, are even more dangerous than the well known ultra violet rays, which are commonly encountered in oxy-acetylene welding. An example of the harm done by these forms of energy is the well known case of the luminous watch dial painters in New Jersey, some of whom were fatally poisoned as a result of moistening brushes with their lips while employing a meso-thorium luminous paint.

While these mechanical devices, such as exhaust systems, masks, goggles, collectors, spray booths, etc., are of tremendous value in protecting the health of workmen, the medical aspect of industrial health protection must not be neglected.

Frequent periodic examinations are essential to any well-balanced control program. These examinations must be made by a competent physician. The period between them depends upon the nature of the hazard, but in many cases they should be more frequent than is the custom today. For the more hazardous jobs there should be at least one a month. In certain cases monthly examinations for the detection of occupational disease are required by the State Law. Considerable progress has been made recently in securing the cooperation of employers in a better observance of the provisions of this statute.

In conclusion, permit me to say that while much has been done in the application of engineering principles to the protection of health in industry, we have only scratched the surface as yet.

If we could only put into practice all that is known already about toxic materials and how to control them, there would be much less ill health and lost time among employees. This is no excuse for stopping research, however, because the time will never come when practice will catch up completely with theory and we should not mark time while waiting for this Utopia to be reached.

LABORATORY TESTS AND METHODS USEFUL AND NECESSARY IN INDUSTRIAL HYGIENE*

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We have been using instruments of precision in the diagnosis of communicable diseases for about fifty years. These exact methods have allowed us to build up a controlling mechanism for communicable diseases. Tinctorial tests for tuberculosis and gonorrhea are examples of these methods. Bacteriological cultural tests for diphtheria and typhoid fever can be used to illustrate another group of exact methods used in the control of communicable diseases. Serological methods have been employed for the diagnosis and control of syphilis, typhoid fever, undulant fever and tularemia. We have built around these laboratory methods a system of control and prevention of communicable diseases. Without these exact methods we would have made slower progress in sanitation and hygiene of man's environment.

The right of the State to inspect factories and exercise some control over the hygienic environment of workers was first established in Great Britain about one hundred years ago. This development was associated with the Labor Movement and also with the Public Health Movement in Great Britain. The Public Health Movement had as its primary object to guard the health of a population in such a way that they could increase in density and at the same time enjoy a falling

*Read before the Section on Public Health and Hygiene, State Medical Society Meeting, Peoria, May 17, 1933.

death rate. This has been accomplished. Some of the most important problems at the present time are those associated with industrial hygiene.

The primary factor to consider in industrial hygiene is atmospheric pollution with gases or solids in suspension that are toxic to man. In addition to this, cutaneous or skin contamination by direct contact with material used in industry, also must be taken into consideration in industrial hygiene. But, primarily we are concerned with the prevention of atmospheric pollution. The rapid progress made in industry has been due to the rapid and persistent utilization of the research work performed in laboratories. The research work done in the field of medicine and its allied subjects usually requires time and a certain lag period before it is incorporated in the practice of medicine or any of its specialties. Industries promptly take over and incorporate new methods and new processes. This leads to a constant changing atmospheric environment around the worker. New products are constantly being formed by the machines and atmospheric pollution becomes an important problem in the preservation of the health of the worker.

The laboratory methods used to aid in the prevention of industrial intoxications are more chemical and physical in nature than those used in the control of communicable diseases which are primarily bacteriological in nature. The methods of determining atmospheric pollution concern themselves with the analyses of both the physical and the chemical status of foreign materials suspended in given air samples. The hazards of dust inhalation form one of the major problems in industrial hygiene. Dust, or physically suspended particles in the air need to be determined with the following physical and chemical points in mind, 1. the size of the particles, 2. the chemical composition, 3. the physical forms, and 4. the concentration.

A discussion of lead would be too involved to incorporate in the general treatment of industrial hygiene. The basic problem is absorption versus excretion. The McCord test based upon a stained preparation of a blood film, gives information of value in evaluating this equation. Further work needs to be done to substantiate Dr. McCord's ideas in this respect. A few preliminary observations made by the State Department of Public Health tend to support Dr. McCord's hypothesis. We think it can be used as a method of preventing lead poisoning. Arsenic exists in the atmosphere in two forms, in a solid compound as well as in a gaseous state. One must remember that mercury vaporizes even at a temperature at which water freezes.

Industrialization has taken place so rapidly that it is impossible to expect the worker to gradually adapt himself to the atmospheric pollutions produced during certain processing methods. The combination of ventilation and efficient respirators or filters must be relied upon to protect the worker. The efficiency of both of these principles can be tested by laboratory methods. Silicosis has recently come to the fore in Illinois as an industrial hazard under certain conditions. In addition to the determination of suspended particles, mentioned above, the x-ray can be used to determine the degree of pneumoconiosis. Asbestosis is another example of an industrial hazard that is now occupying the attention of students of industrial hygiene. The examination of the sputum has been recently shown to be of value in the diagnosis of this condition.

The worker can be examined to see if he manifests any maladjustment to his industrial environment. This is a part of health supervision and does not in its strictest sense come within the scope of this paper. The various blood examinations of gaseous substances toxic to the hemopoietic system have been placed on a sound and reliable technical basis. But these methods tell us the relative degree of damage done to the worker. We are determining maladjustment due to contact with some toxic substance. The best approach to this problem is through preventing contact of the worker with a given irritant. The limits of concentration of many of the known toxic substances in the air are known. We have well established methods and apparatus for the quantitative determination of these substances. Examples could be cited, such as benzene and its derivatives, carbon disulphide, carbon monoxide, etc. The exact degree of atmospheric pollution can be easily determined; the same holds for the heavy metals, lead, mercury, arsenic, etc. The silica and related hazards can be handled in the same manner. We know the upper limit of sand dust a worker can breathe, beyond which he begins to deposit and accumulate the dust in his lungs.

We have sufficient knowledge of exact methods, that can be used in industrial hygiene to protect the worker, to be useful if they are properly applied. The problem now before us is to apply these various methods and determine their clinical value. Detailed discussion of any one or a number of these various methods would be out of place here. A list of references is attached which will give the various laboratory methods, in detail, that can be used in industrial hygiene. We have only attempted to outline a few of the fundamental principles to be followed. Further investigation is necessary in some of the fields but the greatest need is to conscientiously apply known and prescribed methods in industry in order to create a hygienic environment for the worker.

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DISCUSSION

Dr. C. O. Sappington, Chicago: I enjoyed very much Dr. Arnold's paper. I think that the methods used for estimating atmospheric pollution, many of which are now available, are not used to the extent they should be. Some years ago at a meeting of the American Public Health Association in Texas I made the statement in a paper that certainly the objective means for determining the extent or degree of atmospheric pollution had not as yet progressed to the same degree as similar means for controlling milk and water supplies and probably in many instances in regard to food supplies. I think that is still true. I think, for instance, that we are yet lacking in laboratory methods for the determination of atmospheric pollution which should be in general use. I agree with Dr. Arnold that it is entirely important that laboratory work must be developed more in the future in relation to industrial hygiene. Many medicolegal cases are today settled erroneously because the physician does not have at his command exact knowledge which is, of course, always demanded by the courts bearing on the harmfulness or harmlessness of certain contaminations of the atmosphere created by industrial work. Here is an excellent chance for some foundation to spend some money to develop laboratory procedures through animal experimentation, which studies should be prosecuted scientifically in connection with chemists and physicians and laboratory workers as well as industrialists to determine what has been called the "threshold dose" of certain of these poisonous substances. That is information which at the present time we lack considerably and it is information which we must have if we are going to be very thorough in our preventive procedures. I have stressed this point in a number of papers recently but I think it is very important that money and personnel be devoted to this particular use.

A MEDICAL SOCIETY AND ITS SERVICE TO THE PUBLIC*

JEAN McARTHUR

Secretary Educational Committee Illinois State Medical Society

CHICAGO

The medical profession is not selfish, in fact it is the one profession that seeks to do away with itself. It is forever seeking to lessen sickness and increase health. In discovering preventives of certain diseases, it has given health and wealth to the community at large. Widespread epidemics have become a thing of the past. Water and milk supplies have been purified and if the public would utilize all the knowledge that is now available, we would be living in Utopia.

Intelligent people should know that certain diseases can be prevented, but there are many who do not know and as a result we find children suffering from the ravages of diphtheria, scarred by smallpox, and entering school wholly unfit to accept the new responsibilities which fall upon them. It is encouraging that great lay organizations as the Federation of Women's Clubs and the Parent Teacher Associations are becoming actively interested in public health problems. With the interest of these mighty groups and the cooperation of the medical profession, certainly great achievements are possible. These women's organizations are a powerful educational force and we must not forget that each member

*Presented on "Medical Women's Day," May 16, 1933 at Peoria.

has a vote and is therefore an influence for good or bad legislation.

Medical women should be an important cog in this great wheel of health activity—particularly with the women's groups. Medical women should belong to these lay organizations and take active instead of passive part in their work. Nothing is accomplished by sitting on the side lines and complaining of the way things are managed and of the lack of leadership, when one is not willing to give time to these endeavors.

If laymen are not guided and directed by the medical profession, they will secure their information through other sources. The Educational Committee believes that the physician, because of education, training and experience is particularly fitted for an important part in these health programs. Physicians should be the leaders and the authority for health measures in their own communities. They cannot afford to wait for lay organizations to come to them for advice and help. In some cases it is easier to go and offer good will and assistance if needed. No definite goal can ever be reached in working out these health measures if we offer no constructive policies.

Lay groups are going to continue in the health education field. Big business is making use of the health appeal. Look at the advertisements in our lay journals, on the bill boards, in the street cars, over the radio. Every product is advertised in its relation to health. Why? Because health is of interest to every individual reading those signs.

The public is becoming insistent in its search for knowledge which has a bearing upon the problems of individual and community health and it is of immediate concern to the medical profession how this knowledge is to be imparted to the public. Medicine need not apologize for offering information about the wonderful accomplishments of its members. The public is interested, but is going to be ignorant of these facts unless it is told. Show the people that you are concerned with the high mortality rates in your communities. Tell them the reasons for advocating the calling of a physician early in disease. It is a very definite fact that the public is extremely conscious of the importance of periodic health examinations and of the early diagnosis of cancer. They must feel that the doctor is also interested in these questions and after an examination they are not willing to be put off with a few words. Education of the laity, then, requires that physicians be able to answer and participate in the discussion of their questions.

The Educational Committee offers a certain feeling of security to the physician in the educational work he does as an individual. County societies or individual members are more willing to take an active part in these health activities when they know they have the support and backing of a committee representing the state society. The physician finds it easier to discuss protective health measures with his patients and their families when he knows that his colleagues over the state are doing likewise. Medical men and women should let the people know what is being done for the benefit of public health. Let the women's clubs and other lay organizations know through conversation or public addresses that you are keeping abreast of the advances in the field of obstetrics and pediatrics. Tell them what the periodic health examination of the child offers in future good health and what protection is guaranteed against certain diseases.

A physician has nothing to lose by cooperation with such a program. He has much to gain.

Illinois physicians are extremely fortunate in having a service bureau to supply them with aids in carrying out their part of this great health campaign. I refer to the Educational Committee. Perhaps some of you do not know that it was in 1922 the Illinois State Medical Society passed a resolution endorsing a broad plan of publicity through pamphlets, addresses and the lay press, to the end that the public be enlightened on the truths and principles contained in the development, progress, and present status of medicine. A Committee was appointed to carry on such a program but no instructions were given as to how it should function, nor were any funds placed at its disposal to begin operations.

An appeal was made to the membership for donations and in about one year a substantial sum was available. A director was employed, a program was mapped out and the work began. It was a difficult process, and at the end of a single year, the funds were practically exhausted. Accordingly, the Committee in its annual report

recommended that the work continue and that the expense be borne by the Society, without donations. This was unanimously approved, and since that time the Council has appropriated certain amounts regularly for the purpose.

The Committee, as an important part of its work, maintains a Speakers' Bureau of which many of you are active members. Clubs are asking for talks on mental hygiene, cancer, tuberculosis sex hygiene, heart disease, diets, care and management of children and other important subjects. The Committee supplies qualified speakers—in fact thousands of physicians have been scheduled to address every type of lay organization and last year approximately five hundred such talks were given before high school assemblies, parent teacher associations, women's clubs, men's clubs, mothers' clubs, teacher's institutes. Some of these appointments were taken care of by the women physicians on our list—not as many as we would like, especially since many groups definitely request women speakers.

How much better for lay organizations to have health programs given by representatives of organized medicine, selected speakers who can present the material in an interesting way, than to have speakers with biased opinions, or perhaps salesmen of so-called health products.

There is no doubt but what every physician who took part in one of these programs was helped materially and mentally by meeting with such lay groups regardless of the size of the audience. No one person could possibly have reached such a large number of groups covering practically every county in the state. Cooperation of the individual physicians with the Committee makes possible the wide circulation of health information in all sections of the state.

To assist those of you who are called upon to make these public addresses, we have built up a package library service which I think you will find extremely helpful. These libraries, sent out upon request, cover subjects of particular interest to the laity. As far as we know this special package library service is very unique, at least we have had letters from doctors as far west as Walla Walla, Washington, asking for the loan of material. Special folders will be compiled if necessary.

The Educational Committee believes that the newspapers should be used in educating people about health. Editors use material about discoveries in every other field and yet silence is often maintained concerning the important findings of medical scientists which keep our communities healthy and safe places in which to live. In order to bring proper information before the people, the Committee prepares and censors material suitable for release throughout the state. County societies have been offered this material to be used over the signature of local, county or state medical society. Hundreds of interesting articles are on file in the office of the committee. The material is written in a style readily understood by the public. Treatment is not discussed. There is no excuse for any paper in Illinois carrying a health column prepared by individuals who are not physicians of standing. In some cities physicians have shown the editors the dangers of such columns and they in turn have welcomed the opportunity of securing, without cost, material which represents the opinions of the entire medical profession rather than the ideas of one individual.

When we know of special health campaigns being carried on in any community, we are always glad to send the editors articles to be used during the campaign. We have found the releases on diphtheria immunization, smallpox vaccination, the Summer Round-Up, cancer have been widely used during such campaigns.

During the last twelve months 11,055 articles were released to Illinois newspapers. The Educational Committee has the material and facilities for sending out health columns, for sending announcements of medical society meetings, and of special health campaigns. The people are interested in your affairs. They want to know that you had a meeting, that you discussed heart disease, cancer, or reducing the infant and maternal mortality. This is news for the papers why not make use of the outlet?

The radio offers unequalled opportunities for presenting authoritative medical information. Of course, we know from our own observation that many of the so-called health talks broadcast are of a definitely inferior sort. At the same time,

some excellent material is being offered to radio audiences.

The Illinois State Medical Society, for example, has used various stations in Chicago and at present broadcasts regularly from stations WGN, WJJD, WAAF and occasionally from KYW. For these radio talks, individual physicians are asked to prepare papers which are then sent to the Educational Committee for editing and censoring. Later they are broadcast by physicians, announced as speaking for the Educational Committee of the Illinois State Medical Society. Last year 561 talks were given over the radio by our speakers. Copies of all radio talks are kept on file at the office of the Committee.

In addition to health talks, newspaper articles, radio talks, we have found that some people are reached by visual methods and for that reason our service includes illustrative material in the way of moving picture films and slides, which are borrowed from other organizations, pamphlets, and exhibits.

While the Committee has sought to bring the right kind of information to the laity and tell them the story of medical progress, we have at the same time tried to assist organized medicine. One hundred and fifty-eight programs were arranged for medical meetings in the last twelve months. Efforts have been made to further a study of those aspects of medicine which were apt to put the doctor in a bad light in the public eye, such as the infant and maternal death rate. More meetings have been encouraged to present talks on obstetrics and pediatrics. A number of crippled children's clinics have been conducted in several counties under the direct supervision of the local physicians. More interest is being aroused in the important subject of mental health.

One might almost say that medical standards rise in the same proportion as the public demands better care. Education brings about that demand. As a physician once stated, "Education of the people, plus continued education of the doctors, equals *State Health*, the surest guarantee for the future against socialized medicine, Federal methods, or rank charlatanism."

As a service committee to members of the Medical Society, it has been truly successful and as a liaison committee it has been instrumental in smoothing over many difficulties and has devised methods of building a sympathetic understanding of a unified program. Members of the Committee have met with small groups of leaders of the various lay organizations. The Committee in turn has kept the county societies informed of the progress made through these meetings and has noted that members of the societies can assist materially by developing and strengthening contacts. The offices of lay groups have followed the same method in keeping their local groups informed. They too are confronted with difficulties, lack of understanding on the part of their local members and the inability to secure sufficient funds to circularize the entire membership. For that reason, we have recommended that local medical societies grant conferences, whenever possible, with well organized lay groups. We have found a willingness on the part of these clubs and associations to seek medical advice. Their methods have not always been the right ones and we know that the wrong approach has often resulted disastrously. We have for that reason urged club women and men to confer with their medical societies before undertaking any health program or activity—in other words, to get started right.

We have not assumed the role of dictator, we believe that local medical societies should formulate their own decisions concerning cooperation. We have tried to show, however, that all clinics, baby shows, or other health movements should first be approved by the medical profession and conducted with their supervision. We have suggested that pre-school child examinations be made by the family physician in private, and at a reasonable charge when the families are able to pay, having in mind the opportunity of educating parents to their great responsibility for the health of the child.

Certainly a wonderful opportunity is before medical women to enter into the health work of women's organizations and to give the guidance and leadership which will guarantee efficient service and foster harmony. The facilities of the Educational Committee are available to give you help and moral support, you are helping maintain this work, so why not make use of it in your contacts with the public.

SIGNIFICANCE OF BLOOD PRESSURE READINGS IN SPINAL ANESTHESIA*

Report of 40 Spinal Anesthesias with Neocaine, *From the Southern Illinois Prison, Menard, Illinois.

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MENARD, ILL.

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Though safer, less toxic drugs and simpler technique are making subarachnoid block a popular mode of anesthesia with an ever increasing number of surgeons, the abrupt changes in blood pressure readings during the anesthesia often startle the novice and elicit his deep concern.

Since the significance of this blood pressure drop has been the basis of considerable controversy with regard to practical procedure, it has seemed pertinent to crystallize some of the important recent results of animal experimentation and clinical experience on this score. Also, to the end of presenting an accurate operating-room picture of blood pressure variation under spinal anesthesia, we have made a study of the readings during twenty-four hours after anesthesia in 40 consecutive cases of neocainization.

In our cases we have not found it of moment to resort to any of the usual pharmaceutical measures for the prevention of the drop in blood pressure associated with subarachnoid block, or to remedy the drop when it occurs, providing other precautionary measures as set forth in this article, are promptly instituted. Though we realize many hypertensive measures and vascular stimulants have been and are widely employed to combat the blood pressure drop, such as epinephrin, ephedrin, pituitary extract, caffein, strychnine, atrophine and alcohol, our experience with neocaine is in line with the oft repeated statements of Labat and Koster with regard to the import of blood pressure readings.

Tabulation of a series of cases, however, may serve as a measuring stick to the uninitiated of what may be expected in a group of patients in the average good risk class.

The Blood Pressure Picture in Spinal Anesthesia: In our series of 40 neocainizations, we recorded both the systolic and diastolic readings during the operation and again twenty-four hours after operation. These cases included 16 hemorrhoidectomies, 15 herniotomies, 2 urethrotomies, 1 appendectomy, 1 periostotomy, 2 fistulas, 1 cholecystectomy, 1 plastic operation on the scrotum, and 1 operation for osteomyelitis.

During the Operation: There was a drop in systolic pressure in 80 per cent. of the 40 cases, ranging from 2 to 30 mm. Hg., with an average drop of 13.3 mm. The following tabulation indicates the variation range:

Cases	*Showed an Increase of*
7	2 to 10 mm. Hg.
0	11 to 15 mm.
1	16 to 20 mm.

On the other hand, in 20 per cent. of the 40 cases, there was an increase in systolic pressure of from 2 to 20 mm., with an average increase of 6 mm. The variation range of this increase is shown as follows:

Cases	*Showed a Drop of*
15	2 to 10 mm. Hg.
10	11 to 20 mm.
7	21 to 30 mm.

During the operation, the diastolic pressure showed a drop in 75 per cent. of the 40 cases and an increase in 25 per cent. The drop varied from 2 to 24 mm. Hg., with an average of 8.8 mm. The increase, from 2 to 10 mm., with an average of 5.6 mm.

Twenty-four Hours Postoperatively: Compared with preoperative readings, 72.5 per cent. still showed a lowered systolic blood pressure of 2 to 12 mm., or 4.3 mm. average.

In 22.5 per cent. there was still an increase over preoperative readings of 2 to 10 mm. systolic, or an average of 3.6 mm. In the remaining cases postoperative readings agreed with the preoperative.

Postoperative diastolic readings ran a similar course, 60 per cent. showing a lowering of 2 to 14 mm. (average 4.4 mm.), and 37.5 per cent. showing an increased pressure of 2 to 16 mm. (average 7.6 mm.).

In a consideration of blood pressure readings during spinal anesthesia, it must be remembered, too, that many other factors besides the anesthesia enter into the picture, such as the patient's fear and anxiety and individual pre-

disposition to variations in circulatory system function.

Safeguards in Spinal Anesthesia: Rygh and Bessesen[1] in a 1928 survey of recent literature found an incidence of 75 deaths in 250,895 administrations of this method of anesthesia. This is a mortality of 1:3,345. However, as an analysis of these deaths showed that only 4 could be attributed to the anesthetic, a corrected mortality rate showed only 1 death in 11,000 administrations. As in the development of any improved technique, these authors felt that the incidence of mortality in spinal anesthesia has resulted from improper manipulation, use of toxic drugs, over-dosage, and misunderstanding of the physiology of subarachnoid block.

Within the last several years considerable animal experimentation has been carried on in an effort to clarify the physiology of alarming fall in blood pressure during spinal anesthesia, the occasional respiratory embarrassment and the cause of sudden death.

In the earlier days of spinal anesthesia, it was felt that the level of anesthesia depended upon posture during and after the injection and upon the specific gravity of the anesthetic injected. Respiratory failure and sudden death were attributed to respiratory paralysis due to migration and diffusion of the anesthetic to high levels of the cord and the medulla oblongata.

Contrary to this opinion, Koster and Kasman[2] have demonstrated by experimentation on frogs, guinea pigs and the cat that when the anesthetizing neocaine was applied directly to the medulla and upper cervical cord, there was no apparent visible effect on the respiratory movements of the animal in spite of the fact that the proportion of the anesthetic was much greater than that used in humans.

Their experiments led them to conclude that everywhere in the central nervous system the motor mechanism is particularly resistant to anesthetic action and that the anesthetic agents do not have the effect upon the medulla which has been ascribed to them but a selective affinity for sensory nerves. Furthermore, Koster[3] has made extensive clinical application of this physiologic concept, having reported (1928) over 3,500 operations performed by him and his associates during a period of three and a half years under *general* subarachnoid block, including many thoracic, head, and neck operations. They operated upon infants and upon the aged as well, without a fatality which they felt could be attributable to the anesthesia. Labat[4] says of Koster's work:

"He has, by his laboratory experiments and clinical observations, given another blow to the theory of gravitation of the anesthetic fluid to the head with its alleged dangerous features. He has confirmed our statement that acute anemia of the brain is the cause of death during subarachnoid block. For this reason the Trendelenburg position is imperative immediately after the subarachnoid injection and should be maintained at least three hours after the operation . . . The modern school . . . . uses posture (Trendelenburg position) to help gravitation of blood in the prevention of acute anemia of the brain, which is the only logical move in the sudden occurrence of circulatory depression."

It is of clinical interest to record Labat's conception of the physiology of the blood pressure drop. "In introducing an anesthetic solution into the subarachnoid space, he says in his 1928 monograph[5] on regional anesthesia:

"The chief aim is to block off the sensory roots and abolish pain; but the roots of the motor nerves are reached at the same time. . . . . These sympathetic nerves, coming from the central nervous system through the cord, not only go to the splanchnic area, but some of them are destined for the thoracic blood-vessels and the heart. Blocking the motor roots in the subarachnoid space, therefore, means producing a relaxation of the splanchnic blood-vessels and interfering with the thoracic vascular system as well . . . . The fact is that the splanchnic circulation is flooded at the expense of the periphery at which the sphygmomanometer is set . . . A system of circulation depending chiefly on gravity is now established, during which the lowest portions of the body are the richest in blood. The elevated parts become poor and anemic until they are placed below the level of the reservoir, which is in the splanchnic cavity."

The clinical lesson, therefore, to be learned, as recommended by Labat, Jonnescu, Le Filliatre, Delmas, Koster and others who have large series of spinal anesthesias to their credit, is that prompt use of the Trendelenburg position is of utmost significance as safeguard against acute cerebral anemia and respiratory collapse.

A recent report which has added valuable material to our knowledge of safeguards in spinal anesthesia has been made by Bower, Clark, Wagoner, and Burns[6] as a result of their experimentation on dogs at the University of Pennsylvania and Temple University, over the period of time 1922-1931.

Though their experiments left them somewhat unconvinced of Labat's explanation of splanchnic vasodilatation as the cause of the drop in blood pressure, they realized that their findings "were not conclusive evidence against a vasodilatation of the splanchnic area being concerned in the fall in arterial pressure." They felt, however, that their experiment gave considerable proof for the assertion "that respiratory embarrassment was intimately associated with the fall in blood pressure." Of the two reactions, they were led to believe "that the most important danger signal in spinal anesthesia was embarrassment in respiration and that the alarming drop in blood pressure, which was being watched so closely clinically was of secondary importance."

The result of their experiments to date led them to conclude: "The marked fall in blood pressure is mainly cardiac. Paralysis of the intercostal and phrenic nerves interferes with normal chest expansion and diaphragmatic excursion causing a damming back of venous blood in the right heart and its tributaries."

They did not find that epinephrin and ephedrin prevented cardiac dilatation but that "the Drinker respirator alone will resuscitate an animal." They believe that an important safeguard in spinal anesthesia is the use of a respirometer, to determine early changes in respiratory volume; also, that artificial respiration offers the best means for combating respiratory embarrassment and the fall in arterial pressure.

Another very practical result of their experiments has to do with their evaluation of the necessity for the selection of the least toxic anestheticdrug. They attempted to gauge the relative potency and toxicity of several commercial anesthetic solutions by timing, in dogs, the disappearance of all respiratory movements and the period of artificial respiration required before voluntary respiration was resumed. They found that the drugs ranged themselves in the following sequence: "Butyn, stovaine different commercial preparations), nupercaine, spinocaine, apothesine, novocain (different commercial preparations) and least toxic neocaine."

Evaluation of our Experience with Neocainization. Spinal anesthesia has, in selected cases, certain advantages over inhalation anesthesia which are brining it into wide use even in hospitals in which inhalation anesthesia has until recently been the established order. We have in our own experience restricted the use of neocainization to operations below the diaphragm.

Muscular relaxation under spinal anesthesia is a feature which is a revelation to the surgeon. In abdominal operations, this permits of gentler manipulations and elimination of surgical traumatization. There is no operative shock. Postoperative reactions, such as an occasional postoperative headache and nausea, are at a minimum. In our series of 40 neocainizations reported in this paper, there were untoward symptoms during and after neocainization in only two cases. One of these patients was nauseated fifteen minutes after the injection; the other was nauseated to the point of vomiting. Usually the nausea may be easily controlled by instructing the patient to breathe deeply. Inhalations of oxygen are helpful, as well as applications of ice to the face.

In patients with pulmonary tuberculosis spinal anesthesia is a boon, since there are no unfavorable effects upon the lungs and since the frequency of respiration is diminished during the anesthesia. Likewise in functional and organic cardiovascular diseases, neocaine solves the anesthesia problem since, as Labat has pointed out, it temporarily relieves the circulatory system of its normal burden.

So far as the kidneys are concerned, spinal anesthesia has a distinct advantage over inhalation anesthesia in advanced renal diseases because of its minimal irritation. Though the only known route for the elimination of neocaine is through the kidneys the rapidity of its elimination reduces its toxicity on the kidneys to a minimum. Spinal anesthesia is, of course, contraindicted in cerebrospinal conditions.

Reduction of risk in spinal anesthesia entails, in our opinion, familiarity with its induction, with first inductions under the supervision of an experienced spinal anesthetist, selection of the least toxic drug, early detection of respiratory embarrassment and prompt inauguration of corrective measures.

Pure French neocaine, as used and recommended by Professor Gaston Labat, has in our hands proved of minimum toxicity. The tech-

nique of its use is simple, hence less conducive to untoward effect and accident.

For operations such as we have recorded in my present series, we make spinal puncture between the first and second, the second and third, or the third and fourth lumbar vertebrae. Removing the stylet, we allow the spinal fluid to run directly into the ampoule of neocaine crystals so as to effect a solution in the patient's own cerebrospinal fluid. When the crystals are dissolved, the solution is withdrawn from the ampoule into a 10 cc. syringe with a small needle attached. The needle is then removed and the syringe attached to the spinal needle. We then withdraw spinal fluid up to 10 cc., inject 5 cc., then withdraw spinal fluid to 7 cc., inject to 3 cc., and so on until the entire content of the syringe has been injected. The stylet is then replaced, the needle withdrawn and the patient placed immediately in the Trendelenburg position.

This method of alternate injection of solution and withdrawal of spinal fluid is of benefit in my experience for the prevention of gastric distress. When the neocaine was injected without "barbotage," the patient was more prone to experience nausea and vomiting; also, it took longer for anesthesia to set in.

RECOMMENDATIONS

1. Spinal anesthesia with neocaine has in our hands been attended with a minimum of unfavorable response during or after operation and has greatly increased surgical facility.

2. Nevertheless, there are certain safeguards which, from a survey of the literature and clinical experience, are imperative and should never be neglected. One of these is prompt use of the Trendelenburg position immediately after injection of the neocaine. Following the experiments of Bower et al.[6], a respirometer should be used to determine early changes in respiratory volume and resort made to artificial respiration at the first sign of respiratory embarrassment. These authors recommend use of the Drinker respirometer. Following the experience of Weinstein and McHugh[7], who have recently reported their use of neocaine in one thousand cases without a death attributable to the anesthesia, emergency and resuscitation treatment in spinal anesthesia should include such measures as intravenous infusion of 5 per cent glucose or saline, use of the high Trendelenburg position, cardiac massage if the abdomen is open and the heart region accessible, and mechanical respiratory stimulation with inhalations of carbon dioxide and oxygen.

3. With precautions such as these in mind, which it is to be noted should be instituted without a moment's delay at the first warning of respiratory disaster, what the surgeon may expect of spinal anesthesia is a revolutionizing facility with regard to his own surgical skill, as well as a grateful absence of the usual postoperative effects on the part of the patient with uneventful convalescence.

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THE OUTLOOK FOR PUBLIC HEALTH*

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Just forty years ago Chicago opened the gates of the great Columbian Exposition to the world. That event was approached with no little misgivings and apprehension on the part of the mayor and city council. The exhibits were superlative and abundant. Extensive amusements were provided with lavish extravagance. Dignitaries, with plenty of royalty from the far corners of the earth had been invited and would be present. The exhibition, entertainment and social features, of the project were entirely equal to the occasion, and generally satisfactory.

There was, however, one thing to fear and that was the possibility of a devastating epidemic. "Influential journals, both lay and medical and upon both sides of the Atlantic," declared the city health commissioner, "gravely warned their readers against the dangers of a

*Read before Joint Session of Illinois State Medical Society, Peoria, May 18, 1933.

sojourn in a place where, as alleged, they would be compelled to drink Chicago river water; and death by typhoid, smallpox or other zymotic disease was predicted as the fate of those who should venture to visit the World's Fair city."

Mayor Harrison expressed vigorous concern about the health problem. "Our first duty," he declared before a meeting of the city council, "is to keep the city in a healthy condition so that when the world comes here it will not come to a charnel house."

When the great exposition was over the health commissioner proudly asserted that none of the direful forecasts by the prophets of evil had materialized. Only 6,000 people had typhoid fever in Chicago that year, and all but 670 had recovered. Diphtheria had resulted in only 975 deaths, which indicated at least 4,000 cases of that disease. The general death rate was only 21.6 per 1,000 inhabitants. Over one-half of all mortality was among children under five years of age and the infant death rate was 178 per 1,000 births, but the health commissioner declared that these figures represented a gratifying improvement over previous experience.

Things have changed since then. The city health commissioner of Chicago was justifiably proud of health conditions which prevailed in that city during 1893, as compared with what had gone before. Mortality rates which he considered gratifying, however, would be disgraceful and even alarming today. Health conditions in which he took pride would ruin the prospects of the Century of Progress that soon will open with the blessings of health officers and sanitarians everywhere. Had the rate of 1893 prevailed last year in Chicago that city would have experienced no less than 10,000 cases and 2,000 deaths from typhoid fever. As a matter of fact there were only 102 cases and 14 deaths reported in the city. Likewise diphtheria caused 68 deaths last year instead of 4,000, which would have been the figure had the 1893 conditions prevailed and there were 1,266 instead of 10,000 cases. Furthermore, 2,404 infants died last year in Chicago instead of 8,700 who would have been lost under the rate of 1893. Less than 10 per cent. of all mortality last year was among children under five years of age against more than one-half in 1893. Had the general death rate of 1893 prevailed last year in Chicago there would have been 40,000 more deaths than actually occurred.

These are figures to conjure with. They represent a magnitude of positive improvement in human affairs, which can in no wise be duplicated in any other department of life. They measure the gift of life itself, which medical and sanitary knowledge has bestowed upon thousands of people in generous abundance.

Eleven years after the Chicago Columbian Exposition closed, just 29 years ago on May 4, the United States government started to work on the Panama Canal. It is not generally known that the magnificent success of that great project at one time hung in a delicate balance that hinged upon medical knowledge, the acceptance of which was still under debate. The job that took a decade to complete was scarcely two years old. Bitter opposition to the sanitary principles practiced by William Crawford Gorgas had arisen among the engineers. A new Canal Commission urgently recommended the removal of Gorgas early in 1906. This proposed change was approved and advocated by the Secretary of War, the Honorable William Howard Taft. Strong pressure by powerful friends recommended to President Theodore Roosevelt that Gorgas be replaced by Dr. Hamilton Wright who was outspokenly opposed to the idea that mosquitoes carried yellow fever.

President Roosevelt was uncertain about the matter, but leaned toward following the recommendations of his Secretary of War, and the Canal Commission. He took the precaution, however, to ask the opinion of Dr. William H. Welch of Johns Hopkins, who recommended that Gorgas be retained. Still undecided the President invited his close personal friend, Dr. Alexander Lambert of New York, to advise him on the matter. Only after the most urgent pleading by Dr. Lambert did the President finally decide in favor of Gorgas. "They tell me," Roosevelt is quoted as saying, "that Gorgas spends all of his time oiling pools and trying to kill mosquitoes."

By the narrow margin of a single decision on the part of a half skeptical president, truth prevailed and through sound sanitary practice, which the American Medical Association upheld from the outset with the greatest vigor and credit, the construction of that great waterway was made possible. The Panama Canal in other words, is

a perpetual monument to the solid principles upon which public health work is based.

The story of yellow fever is well known. In 1905 the last epidemic of that disease occurred in this country. During the century that went before fully one-half million people in the United States had the disease, and no less than 100,000 failed to recover. The economic losses can be measured only in astronomical figures. It is hard to believe that since 1905 public health work has saved at least 150,000 people from sickness, and 30,000 from death by yellow fever in the United States alone.

Apparently we have come a long way since the typhoid and yellow fever days. In the light of those triumphs and many others, it would be an exaggeration to say that nothing has yet been accomplished—that everything remains to be done. A survey of future possibilities, however, encourages that point of view. The achievements of the past have merely cleared the vision for future accomplishments in the improvement of public health.

In the past the great triumphs of public health have been largely accomplished against those diseases which could be combated by mass effort. The sanitation of water and milk supplies, the proper disposal of sewage and the eradication of mosquitoes, are things that can and have been accomplished through community effort. Future improvement in public health must depend more and more upon individual effort. This will involve education. The public must know whom to believe, what to do, and when to do it. The health department and the medical profession is the source of this information and it is their duty to disseminate the knowledge.

There approaches also with great rapidity the necessity for a sharp shift of emphasis in the public health program. This calls for more attention to the health problems of middle and later life on the one hand, and to a substantial refinement of technique in the usual public health activities on the other. The practice of birth control, and the outstanding success of preventive medicine in saving child life has caused a tremendous shift in the age level of the population. Instead of 3 in 10, as was the case in 1900, there are now 4 in each 10 of the population who are 35 years old or over. Lately the birth rate has declined rapidly and the death rate of children has gone down at an accelerated rate. Soon we may expect that more than one-half of the population will be upwards of 35 years of age. Thus heart disease, cancer, nephritis, rheumatism and perhaps most important of all, mental difficulties, will loom larger among the health problems to be met in the future. Periodic health examinations, immunization against diseases so far as practicable, training in mental hygiene, and the building up of greater confidence in the medical profession are the means which must be employed against these problems.

Birth restriction has been proportionately greater among the better types of the race than among the less satisfactory. The 1930 census showed that 18 per cent. of the wives of professional men go entirely childless, against only 14 per cent. of the wives of unskilled workers. The range in the size of families follows a similar course. This points to increasingly important problems in mental health. Regardless of the hereditary factor in mental capacity, the environment under which children born to families of the less satisfactory type must live, creates a serious obstacle to healthy development. From all sides, therefore, it seems clear that the problem of mental health is crowding itself upon us whether we like it or not. Civilized society must descend to a lower standard of citizenship, or devise means for training those born under unfavorable circumstances to fit into the scheme of things.

Refinement in the technique of public health procedures is made necessary for a number of reasons. In the first place there are new discoveries like susceptibility tests, and the effects of ultra-violet irradiation on foods. Secondly, the larger results already obtained from mass effort have magnified the importance of *carriers* in the spread of disease, so that means of detecting and controlling these sources of infection must be employed. Thirdly, the necessity for economy makes selected effort a virtue. Thus in campaigns against diphtheria, the greatest stress and emphasis must be placed upon the child under six years old. Instead of flooding a community with educational matter concerning diphtheria, an effort should be made to reach only the parents of children under ten or twelve with particular emphasis upon those of the younger children.

The very appearance of typhoid fever in a community must be accepted in the future as a challenge to epidemiology in the detection of a carrier. Somewhere in the background the carrier exists. The technique of the health department must be such as will detect the carrier in order to dry up the source of the trouble.

There is another direction in which public health activities need to be selective. This is in respect to localities that may be termed reservoirs of infection. Last year, for example, seventeen counties in Illinois experienced death rates of over 10 per 100,000 from diphtheria while the state rate was only 3. Three counties had rates of over 25 each. The same is true in respect to typhoid fever. One county, Hardin, reported the amazing rate of 86 deaths per 100,000 population from typhoid fever. A dozen counties had rates of over 10 each against a state rate of 1.6.

In respect to tuberculosis much the same situation prevails. Two counties reported no mortality at all last year while others ranged from minimal to sharply excessive rates. These statistics indicate that preventive and control programs must be highly selective, in order to concentrate great effort on areas which now provide the great reservoir of communicable diseases in the state.

Not all of the larger health problems are new. Tuberculosis, for example, is still a problem of the first magnitude. Today no less than 40,000 people in Illinois are the victims of active tuberculosis. This disease results in upwards of 4,000 deaths annually. In the skin test and the x-ray, however, we have available the tools with which tuberculosis can be reduced to a factor of minor health significance.

The problem, from a public health viewpoint, is primarily a matter of detecting and controlling sources of infection. No person can have tuberculosis without being infected with tubercle bacilli. In the vast majority of cases the bacilli reach healthy people from other people who are infected.

A positive skin test on a young child shows infection. Since the contacts of young children are limited, the source of infection is narrowed to a relatively small number of people. Thus through the test it becomes possible to trace down and control unsuspected cases of tuberculosis which make up a great reservoir from which the disease is spread.

Among thousands of school children tested in Massachusetts it was found that more than one-half of the infections came from other members of the family. Meyers cites an instance where 4 out of 60 nursery school children gave a positive reaction to the test. A search showed that one of the teachers was the source of infection. From all of the experience with the practical application of the skin test, it seems clear that sources of infection in the households of young children and among school teachers would be relatively easy to locate. Carrying out a program of this kind would result in a tremendous saving of life and health. Supplementing the test with x-ray examination where indicated would, of course, be of infinite value to thousands of children and young adults with early and minimal tuberculosis.

There are in Illinois about two and one-quarter million head of dairy and breeding cattle. Practically all of those cattle have had the tuberculin test, so that tuberculosis has been almost completely eradicated from dairy and breeding herds of the state. In Illinois there are about half a million children under five years of age and another half million of high school age. It would seem that we ought to do no less for the preservation and protection of their health, than for the cattle that we own. In the young child a positive tuberculin test can be used to detect sources of infection. For the high school child it will lead to a diagnosis that makes effective treatment possible at a time when tuberculosis is apt to get started on a disastrous course. Thus by the use of a new technique it is not only possible, but altogether practicable to strike tuberculosis completely from the list of major health hazards.

Due to lack of time I am going to eliminate from this paper the relationship between food and health.

Milk is a perpetual public health problem that gives promise of assuming even greater importance than in the past. The significance of pasteurization and sanitation is well known. Recent experiments show that milk has nutritional possibilities that were never suspected until lately. By irradiating milk or cows, with carbon arc lamps, or by adding yeast to the food of cows

an antirichitic value fully equivalent to cod liver oil or ergosterol can be added to milk. The cost of the carbon arc method of irradiation is less than a quarter of a cent per gallon when milk is handled in quantity. The significance of possibilities of this kind needs no emphasis to a medical audience. The ability to prevent and manage rickets, by prescribing an adequate milk supply from a properly regulated source sounds like something that approaches the miraculous. Experiments and even practice show that such is the fact. In New England the practice of modifying cow food with the object in view of producing antirichitic milk has already reached considerable magnitude. These trends in the dairy industry add to the responsibilities of health authorities, and make more important than ever the sanitary supervision over milk.

Another closely related problem is the influence of diet and nutrition on teeth. Both in the laboratory and in practice, it has been demonstrated that diet has a profound effect on the dental structure. Boyd and Drain in Iowa and Bunting in Michigan have shown that caries in the teeth of children can be arrested by a change in diet that limits carbohydrates and increases milk, eggs, vegetables and fruits. Agnew has announced the ability to prevent decay, and to arrest it where caries have already started by the use of a diet rich in vitamin D and phosphorus. Price has recently pointed out that in certain Swiss villages which have escaped the dietary habits of modern civilization, only one child in three has carious teeth, the exact reverse of conditions here. The Mellanby's in London, have been able through the regulation of diet to produce caries almost at will in animal experiments.

These observations and experiments indicate the tremendous importance of dietary habits on general health conditions. When more than two-thirds of high school pupils are found to have carious teeth, there are ample grounds for believing that something is radically wrong with health habits. If a change in diet is the way out, the public health program of the future can scarcely escape a large responsibility in this field.

Industrialization has brought with it a multitude of health problems which may be expected to increase in importance. The health hazards of industry are divided principally into three general classes. These are accidents, poisoning and lung ailments. All three of these problems involve public health aspects. The accident rate can be controlled to a large degree through the medical examination of personnel, the proper construction of buildings, the use of safety devices and the proper placement of equipment.

Poisonings result chiefly from lead and lead products. Carbon monoxide gas also constitutes a definite risk. The lead products are utilized in a large and growing number of manufacturing processes. Poisoning of employes can be avoided only through the appropriate use of sanitary precautions, the careful medical observation of personnel, and the selection of personnel through medical examinations.

Lung involvement is a hazard of the dusty trades. Chief among these are the manufacturing and industrial processes which release silica dust into the air. The manufacture of asbestos products also involves a serious risk to the respiratory system. Rock drilling, granite cutting, brass foundry work, cement and slate mills and silver polishing are the activities in which the danger of silicosis is greatest. The utilization of dust collecting equipment, and of efficient ventilating devices must be relied upon as the principal preventive measures. Relatively frequent medical examinations of exposed employes are essential, however, in order to guard against unsuspected danger.

Another problem of industry is that the conditions under which employes work may greatly increase the risk of diseases common to the general population. Employes of the steel industry, for example, suffer a much higher mortality from pneumonia than do wage earners of about equal rank in other occupations. Strenuous work coupled withexposure to sudden and wide changes in temperature, appear to be dominant factors in causing the greater pneumonia incidence. In like manner it may be inferred that other occupations carry with them conditions that favor various diseases.

Past history gives no assurance that industrial captains will voluntarily and altruistically venture upon health protective measures for employes. Reasonable working hours, respectable rates of pay and compensation for injuries, came only as the result of pressure from legislation and labor unions. There is no likelihood that technical measures required for protecting the health

of workers exposed to industrial hazards will be adopted on anything like a universal scale, without firm and vigorous educational work on the part of health departments. This must become more and more a function of the State Department of Public Health, if it fulfills the duties and responsibilities imposed upon it by the statutes.

Chronic rheumatism is a health problem that has had practically no public attention. Studies in Massachusetts, as well as in Great Britain, indicate, however, that this condition constitutes the greatest single cause of chronic ill health. A house to house canvass of one per cent. of the population in Massachusetts, led to an estimate that there are at any one time 145,000 people in that state with chronic rheumatism. Over two-thirds of these people either receive no treatment at all, or are applying self prescribed treatment. In Great Britain a study showed that wage earners lose 5,500,000 weeks of time annually because of chronic rheumatism. Reports from both Massachusetts and Great Britain show, however, that two-thirds of the chronic rheumatism patients can be either completely cured or greatly improved with appropriate treatment. There seems to be no valid reason for doubting that the prevalence of chronic rheumatism is no less in Illinois, than in Massachuetts or Great Britain. The problem is one that has had no attention. The State Department of Health can scarcely ignore such a situation.

These new problems, or new methods of attacking old problems, are crowding themselves upon the health horizon. Their recognition does not imply that infant and maternal hygiene, the sanitation of milk and water, the prevention of diphtheria and smallpox, the health supervision of school children, and the suppression of venereal diseases, are problems that have been completely solved. Far from it. These activities will continue to demand the constant attention of public health workers. The newer problems and the newer ways of attacking the old ones, mark the ever-broadening frontiers of preventive medicine and public health. They lift a challenge to the medical profession and to the official public health agencies. They cannot be approached nor solved satisfactorily without the closest cooperation and accord between the practicing physicians and the public health workers. A solid union between these two is the best possible insurance against state medicine.

The program of the State Department of Public Health is primarily educational. For the practice of medicine there are physicians enough and to spare. With properly adjusted relations the official health agencies and the medical profession depend each upon the other for services and assistance that neither can provide alone in progressing toward the attainment of a common purpose. The health official regards the community in the light that the private physician regards an individual patient. To the health officer a case of tuberculosis or typhoid fever, is to the whole community what an infected finger or tonsil in an individual patient is to the practicing doctor. The infection must be dealt with at the focus in order to protect the whole body.

When the Department of Public Health undertakes to distribute arsphenamine, vaccines and sera the object is principally to dry up sources of infection on the one hand, and on the other to ease the pressure on the tax payer. Very recently, for example, it was found that the medical and hospital care of patients suffering from venereal diseases in St. Louis costs substantially more than $2,000,000 annually. Only one-quarter of that sum goes to private physicians. Nearly one-half is paid out of public funds for maintaining hospitals and institutions which take care of public charges. It seems fair, therefore, for official public health agencies to distribute drugs and make laboratory tests, in efforts to dry up the sources of infection which feed the public hospitals and institutions with the wreckage of human life. This is the principle upon which is based all activities of the State Department of Public Health. The aims and purpose of the State Department of Public Health is to bring to the public the highest possible degree of favorable health, through the intelligent use of the medical profession, and the application of recognized principles of sanitation. To this end it must collect and study a vast amount of statistical data, indulge in laboratory research, keep informed about what is going on throughout the world, and manage in some way to guide the public along the pathway of sound medical and sanitary knowledge.

Any public health program will encounter opposition. The newer the procedure the greater

will be the volume of obstacles thrown in the way. The American Medical Association standing firmly with Gorgas succeeded against powerful opposition in the application of knowledge that eradicated yellow fever. Standing shoulder to shoulder the State Department of Public Health and the organized medical profession can give to Illinois an increasingly high degree of health protection, and at the same time maintain the integrity, independence and self-respect of the citizen, the physician and the official.

TREATMENT OF ACUTE GONORRHEAL EPIDIDYMITIS BY INJECTION OF THE PATIENT'S WHOLE BLOOD*

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Autohemotherapy has been much in vogue in recent years. It was first introduced into dermatology by Meyer, Linser, Spiethof, Henk, Fox[1] and others, who used the patient's own blood serum and later that of other individual's in the treatment of certain skin disorders, namely, herpes of pregnancy, pruritis, urticaria, eczema, dermatitis herpitiformis, etc. Ravaut,[1] wishing to avoid the complicated technic necessary in the preparation of the serum, tried the injection of the whole blood immediately after it had been taken from the patient Later he used this method for the treatment of gonorrhea and its complications. Other investigators, like Farnara, Bussolai, Epstein, Von der Beke,[1] and Papi,[2] had experimented further with autohemotherapy in gonorrhea, using the whole blood and reported varying degrees of success. Weill,[3] tried autoplasmatherapy in gonorrheal epididymitis with favorable results; this consists of the removal of the fluid from an accompanying hydrocele and having heated it to 45° C. injecting it subcutaneously.

Recently, Valerio of Brazil,[4] treated one hundred and fifty patients with acute gonorrheal epidymitis by intraepididymal injections of the patient's whole blood with results so encouraging *as to lead me to try this method of treatment.*

As to the mechanism of its action, many opinions are expressed. According to a majority of the authors, autohemotherapy acts in the same way as foreign protein treatment, bringing about a colloid disequilibrium, which is manifested by the so-called hemoclastic crisis, a syndrome characterized by lowering of blood pressure, primary leucocytosis followed by leucopenia, disturbed white cells ratio, increased coagulability and change in refractometric index of blood.

I am presenting herewith a preliminary clinical report on the treatment of acute gonorrheal epididymitis by injection of one c.c. of a patient's whole blood into the epididymis. This report is based on a study of sixty-two consecutive cases, fifty of which were observed and treated at the Municipal Social Hygiene Clinic conducted by the Board of Health of Chicago and twelve in my private practice.

All cases were ambulatory, patients receiving no other treatment besides the autohemotherapy, except some scrotal support by suspensory bandages, often self-made and poorly fitting, and hot applications, when these were available. Local treatment for gonorrhea was resumed after symptoms of acute epididymitis had subsided, when residual infection in the urethra or its adnexa was present. Careful records of the cases treated were kept.

These sixty-two patients, the youngest of whom was fourteen and the oldest, sixty-three years of age, all had gonorrheal urethritis of four days to five and and a half months duration, complicated by acute epididymitis of one to twelve days in onset. In thirty-nine, epididymitis was confined to the left side, in twenty, to the right, and in three it was bilateral at the time of first examination.

Eleven clinic patients received only one injection, and failed to return for further treatment. The remaining fifty-one cases received from three to eight injections each, the average being 4.8 injections per patient. 243 injections were given to the entire series.

Clinical observations: Marked improvement to a total subsidence of pain and tenderness had usually occurred within two to twelve hours after the first injection, while an almost immediate relief was often noted. As a rule, at the subsequent injections, the testes and epididymis could be handled without much discomfort or pain to the patient.

Some resorption of inflammation and reduction of swelling was usually observed after the second

*Read before the Chicago Urological Society, May 25, 1933.

injection. After the third injection, epididymis was normal on palpation in eighteen cases.

After the 4th—in 32 cases.
After the 5th—in 40 cases.
After the 6th—in 43 cases.
After the 8th—in 45 cases.

In six cases resolution did not take place completely and there remained a small amount of swelling after eight injections were given. However, in these cases I did not feel that the presence of small, discrete and painless nodules in the cauda epididymis was sufficient indication for further injections. As a rule, the induration and swelling became less marked with each injection, though the indurated area did not in all instances get progressively softer with each injection; at times it fluctuated but usually it progressed satisfactorily.

The maximum improvement was noted after the third injection. Slight local and general reaction following injections was often observed. Acceleration of pain due to the increased intraepididymal tension from injections of blood was not constant; when present, it was but of short duration, usually lasting from few minutes to two hours. Some patients had a rise of temperature and a slight chill coming on from two to four hours after injections. These cases seem to profit most by the treatment. The pulse-rate was counted before and at one and three hour intervals after each injection, in twelve instances; it remained unchanged in eight cases, while in four there was a slight preliminary decrease followed by an increase. White blood count taken before *and in one and three hours after injections, in* twelve cases, showed no change in count in three, *and an increase of 1,500 to 7,000 leucocytes with*in three hours in nine instances. No effect on the blood pressure was noted in the above cases.

Complications: one scrotal abscess occurred in a colored patient; this was incised and drained *and it healed promptly. There were six recur*rences of epididymitis, which were due, I believe, to discontinuance of treatment on the part of the patient of the infection of posterior urethra, prostate or vesicles, which was still present. We know that these structures are practically always involved in the case of epididymitis.

Contraindications of this treatment, as far as I am able to determine, are: 1. Extreme nervousness and hypersusceptibility to pain on the part of some patients. 2. Marked elevation of temperature, chills, etc., at the time of treatment. 3. Severe or fulminating type of epididymitis, and 4. Presence of gross suppuration of epididymis, i.e. conditions where surgical intervention is indicated.

The technic of treatment is very simple. Injections are made very carefully on account of marked tenderness of the scrotal skin and the involved organ, though it was not necessary to use any local anesthesia in any of the cases treated. One c.c. of the patient's blood is taken from any of the veins of the fore-arm and is injected rapidly into the center of the involved area; the scrotal skin being previously desinfected with alcohol or mercurochrome. I find, it is preferable to use a 5 cc Luer-Lock syringe with a fine needle of about 23 or 24 gage and one inch and a quarter in length. The needle should be kept very sharp; this is important, as the involved tissues are tough and after the first injection the point of the needle dulls rapidly, causing unnecessary pain on passing through the skin.

Injections are made at a depth of one to three cm. depending on the degree of edema and infiltration of the surrounding tissues. In a small percentage of cases an occurrence of extensive hydrocele with the exudation becoming solidified, obscures the outline of epididymis, obliterates the normal groove between it and the testis, thus increasing the difficulty of delineating the structures.

Injections are repeated at twenty-four or forty-eight hour intervals, depending on the tension of *the inflamed tissues. If it required fifteen to* twenty minutes or longer for the tension to sub*side, the next injection was not made until after* forty-eight hours. If the tension yielded in two to five minutes, the injection was repeated on the following day.

The first injection should be given as soon as *possible after the onset of the epididymitis.* The sooner the injection is given, the more rapid is *the cure.*

Conclusions: The results obtained by this method of treatment of acute gonorrheal epi*didymitis* have been, in my experience, superior in every way to all other methods used, singly or *collectively.*

It diminishes the severity of symptoms, shortens the course of infection and promotes a *restitutio ad integrum* more rapidly than any

other form of therapy, thus reducing to a minimum the subsequent development of azoospermia. A complete anatomical and physiologic cure may be expected from this treatment.

The exact mode of its action is still in the field of speculation, but its administration is practically free of danger. Its simplicity and economy are distinct and added advantages.

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THE INSURANCE ASPECT OF ROENTGENOLOGY IN CARDIOLOGY*

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In no field is it more necessary to maintain the nice balance between clinical knowledge and statistical experience than in the large and increasing groups of cardio-vascular-renal impairments as they relate to insurance. Clinical conceptions of these conditions have changed repeatedly during the last few decades and statistical evidence has altered as widely, during the same period. When we think of the contributions which accurate blood pressure estimations alone have added to our knowledge of heart disease and realize that a little over twenty-five years ago blood pressure did not enter into either clinical or statistical decisions, we can appreciate how essential it is to keep receptive to new clinical methods as well as constantly changing statistical evidence. The sphygmomanometer has proven its value. Since then we have had the refined development of tests for albumin, quantitative sugar and blood sugar and many other mechanical aids in evaluating signs or symptoms referable to the cardio-vascular-renal system.

Dr. Dublin has focused our attention on the seriousness of organic heart disease. He has estimated that one in every five of the population living at the age ten will eventually die of organic heart disease, that the child of ten is now three times as likely to die of heart disease as from tuberculosis and that as the more common insurable age is approached the incidence increases. At age thirty-five the probability of dying of heart disease is four times that of dying of tuberculosis.

He has also pointed out the fact that in most instances these deaths involve not only a loss of many years of productive life, but often years of complete invalidism prior to death.

There are in this country 2,000,000 people ill with heart disease and 200,000 deaths annually. Death from arterial disease (apoplexy) and Bright's disease, closely parallel the heart disease curve, and double the total loss from combined cardio-renal-vascular impairments.

A calculation by Henry S. Nollen, deduced, in collaboration with fifty-two insurance companies, that in an average community of 100,000 policy holders, organic heart lesions caused the death of 127 persons; pneumonia ranked second, with 88; then follows tuberculosis with 81 deaths and fourth in order is cancer with a toll of 72, Bright's disease 68 and apoplexy 56 deaths.

It will be noticed that the cardio-renal-vascular group has a very large mortality rate. These changes occur most frequently after the age of forty and are being accepted in a major sense as senescent changes, consequently, as the age approaches at which a person might afford a large insurance policy he also becomes burdened with those senescent changes that make him a risk. Only such a conception gives a broad enough view to successfully guide and influence the individual clinical case or to arrive at an adequate basis for underwriting action. It is true that years have been added to the average life expectancy, but the duration of life has not been extended—only the attainment of its natural length has been rendered possible.

At this point I wish to call attention to the important factor which is frequently neglected, namely, heart size. At present the underwriting standards of heart size are confined almost altogether to a grossly inaccurate estimate of normal, moderate or great enlargement, determined by observation, percussion and auscultation. Attention should be called to this, first, that of all the indications of a chronic degenerative process, the most constant and most important are cardiac hypertrophy and dilatation; second,

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that heart size is susceptible to fairly accurate measurement by the use of the x-ray.

Eyster says: "Determination of the size and contour of the organ represents the most important single procedure in cardiac diagnosis. If we are in a position to detect with perfect accuracy the departure from the normal in this respect, we could, with our present knowledge of cardio-dynamics, determine the presence and estimate the extent of every abnormality except those specifically affecting the automatic and conductive system."

All recent experimental work tends to indicate that the real injury that results to a heart in organic heart disease is the result of stretching the muscle. It is this, probably, which is the direct cause of the hypertrophy. All of us are familiar with young subjects with multiple valve lesions who have perfectly good compensation and are physically active. The hypertrophic heart undergoes degeneration earlier than the normal heart.

The truest estimate of the extent of the encroachment upon the myocardial reserve is to be gained from a determination of the extent of the enlargement of the heart. This dictum of the modern cardiologist is the one least well understood and least readily accepted, perhaps, because of the difficulty of determining the extent of the enlargement in borderline cases. Nevertheless, any enlarement which is demonstrable, means damage to a greater or lesser degree to the myocardium, and a loss of myocardial reserve and the progression of the disease is indicated by an increase in the size of the heart.

In Europe the custom has been to use the method developed by Professor Moritz known as orthodiascopy, in which the patient faces the observer before a fluoroscope and the central x-ray beam is used tangentially to the cardiac and aortic outlines, tracing these projected points on a suitable material. In addition the extreme lateral edges of the chest are marked off at the level of the diaphragmatic dome. Then a ratio is established between the transverse diameter of the heart and the diameter of the chest. This ratio is accepted to vary within the normal limits of from 39 per cent. to 53 per cent.

This method requires great expertness and in addition, moderate breathing, also a certain amount of body immobilization of the patient which is quite difficult.

In this country, teleroentgenography is the method most frequently used. The essential factor in this procedure is to have a focal film distance of at least six feet, the purpose of which is to eliminate magnification of the cardiac silhouette. This is accomplished as far as practical purposes are concerned, although the greater the cardiac enlargement, the greater the magnification; also, the deeper the chest, the greater its distortion, and similarly, the greater the width of the chest, the more the relative increase in the transverse dimension of the chest; however, the actual percentage differences between the calculations of the cardio-thoracic rations based on orthodiascopy and teleroentgenography are of no consequence. The differences in area calculation by the two methods is noticeable, those obtained by teleroentgenography are larger, average from 15 to 25 per cent. greater.

Again this discrepancy is not as detrimental as it appears; first, in both instances the auriculo-aortic junction cannot be definitely recognized and neither can the lower periphery of the heart, which is submerged in the diaphragmatic trough, be definitely traced, therefore, these must always be variables subject to the inclinations of the observer. In addition, the heart when viewed laterally inclines slightly, so that the base is more posterior than the lower portion; also, some hearts are rotated a trifle more than others, therefore, these variations will make it impossible to get the absolute size of the heart, nevertheless, the mensuration is quite accurate for all practical purposes. Incidentally, spinal curvatures will have some influence on contour and silhouette area.

The film, seems to the writer, to be the method of choice, because it is simple in its performance, because it can be preserved as a record and because it might reveal unsuspected lesions such as tuberculosis, malignancies, pleural adhesions, pleuro-pericardial adhesions, etc.

In conjunction with the film method, the chest should be fluoroscoped, paying especial attention to the precardiac space at the base of the heart, also note the retro-cardiac area, the cardiac tone, frequency of contraction and rhythm.

Time will not permit discussion of the various heart lesions; however, it is necessary to state that we must not become too fanciful in our

claims. Serious efforts have been made to establish auriculo-ventricular ratios and oblique projection ratios as relate to the heart, aorta and chest. These efforts are commendable, but exceedingly limited in their practical value. We all know how difficult it is to dissect the auricles from the ventricles, letting alone the difficulty in definitely recognizing their demarcations in life. The same explanation applies to the fluoroscopic visualization of the thoracic aorta, more particularly the arch; we must acknowledge our inability to trace these structors with any degree of satisfaction.

The heart has to be considered in relation to the thorax both from the standpoint of area and transverse dimension; in this way only, can an appropriate conclusion be drawn. The asthenic type is somewhat vertical in position while the sthenic inclines more towards the transverse. The angle formed at the intersection of the midline of the body and the line portraying the length of the heart may vary from 45 degrees to 50 degrees in the asthenic heart, while it ranges from 50 to 70 degrees in the sthenic.

The tables formulated by Dietlin, Bardeen and Hodges in which height, weight, sex, volume of heart, and cardio-thoracic ratios have been established are invaluable and must be used as bases for interpretation, as they represent the normals.

The aortic arch is frequently involved in hypertension and it is important to observe this very closely; also, I would be remiss in not mentioning the possible presence of syphilitic aortitis, as it tends to appear first just above the aortic valves and is most noticeable in the second oblique position when viewed fluoroscopically. This finding is important as it may be the first finding of a syphilitic infection since even the serologic tests might be negative in 20 per cent. of syphilitic cases.

Along with an accurate estimation of arterial tension, a percentage estimation of albumin, and an electrocardiographic reading, a thorough x-ray examination as herein described will give more substantial evidence in regard to the deadly triad of cardio-renal-vascular integrity and one upon which to base action either for standard insurance or for more accurately rated standard coverage.

DISCUSSION

Harry A. Durkin (Peoria): Mr. Chairman and Members of the Radiological Section: Dr. Hubeny has given a very conservative estimate of the value of x-ray in cardiology. A routine cardiological examination is perhaps less dependent upon the x-ray than the examinations in other special fields. The gastro-enterologist and the urologist, for instance, would be more or less completely lost were it not for the assistance obtained from their roentgenological confreres. With a good history and careful percussion and auscultation, fortified by electrocardiographic examination, the percentage of diagnostic errors in cardiology is comparatively low. The fact that the heart lends itself very easily to investigation by these more simple procedures accounts for the comparative rarity of x-ray examination.

Percussion, even in good hands, is admitedly inaccurate, particularly when there is great cardiac enlargement or when there is a thick chest, or when the individual has emphysema. Some good clinicians have gone to the extremes of abandoning percussion entirely. I think this is a serious mistake because x-ray is not always available and it behooves most of us to perfect and perpetuate out technique in percussion.

X-ray is particularly valuable in the diagnosis of diseases of the aorta. Ordinary methods are notoriously unreliable in the detection of increased supracardiac dullness. It is possible to miss fifty per cent. of aortic aneurysms by ordinary clinical procedures. If this is so, the percentage of error in the diagnosis of the aortic dilatation which occurs in hypertension and arteriosclerosis must be considerably higher. One can certainly say that we have no other means of detecting tortuosity of the aorta. Serial x-rays are of value in delineating the progress of cardiac enlargement over a period of time and the degree of improvement under treatment.

Like all other methods, it has its limitations. The number of seriously damaged hearts which show no enlargement by x-ray is not inconsiderable. The interpretation of the normal limits of the heart's shape and size is beset with difficulties. Many factors, such as age, size, weight, and build, may produce a number of variations within normal limits and it is quite difficult, in spite of all the tables we have, to determine whether in a given case certain variations are abnormal. In spite of these difficulties, radiology is now accepted as a valuable handmaiden to modern cardiology. We have traveled a long way since 1800, when Sir William MacKenzie wrote: "Indeed, I am doubtful if any x-ray examination of the heart has thrown the slightest light on a cardiac condition."

I am not over-hopeful that the Insurance Companies will accept the value of x-ray in the immediate future. It is only within recent years that they have become conscious of the great value of electrocardiography in the examination of individuals past middle age. If it takes them this long to recognize a relatively simple procedure, I feel that it will be some years before they accept routine x-ray examinations.

Thomas Cantrell (Bloomington): I have been called upon by the Government to make a good many examinations. I just want to speak on one phase of the subject; that is blood pressure. I know there is a great

deal of stress placed upon this. I have sometimes wished the man had died before he invented it. It is of value to the physician but not of value to the patient. If the physician will take his examination and keep it to himself and use it as he does other things, it is all right. He does not comment upon the information he gets from palpation or auscultation, but he does comment entirely too much upon the blood pressure. We have more invalids now in the city of Bloomington going around with high blood pressure, when there is nothing on earth the matter with them, than any other class of patients we have before us, simply because the surgeon who has examined the patient has been very particular to tell him he had blood pressure of 180 or 200.

I just want to voice my sentiment against that. You don't even give your patient the diagnosis you have made, the result of palpation or auscultation or x-ray, but oh how free you are to pass on the blood pressure. In connection with facts in recent literature, I believe they have followed a class of moderately high blood pressure and low blood pressure, and the death rate in the two classes showed such little difference that it was nil.

I found a doctor's blood pressure to be 110 the other day. I expect that man to live to a ripe old age. It is perfectly natural for that individual.

While I do not wish to be understood as saying that the blood pressure is not of importance in diagnosis, I think it is of more value to the doctor in making the diagnosis than it is when given out to the patient.

Dr. James G. Carr, Chicago: There are just two things about this subject which interest me particularly. The discussion I have to offer will be brief, but I would like to know from the roentgenologist if he can say at what level we must determine when a given patient has a moderately hypertrophied heart.

The second point which I would like to emphasize is that in spite of the literature which Dr. Hubeny has so well summarized we are not sure what the relationship is between hypertrophy and disease. Until we are satisfied that the moderately hypertrophied or moderately enlarged heart—which is perhaps a better word because so often we regard the large heart as large because of dilatation rather than hypertrophy—until we have satisfactory evidence that the moderately enlarged heart is pathological and further evidence that the roentgenologist can say with assurance that above a certain standard cardiothoracic ratio, we are dealing with pathological conditions, it seems to me we ought to keep an open mind and keep reminding ourselves that thus far we do not know the significance of borderline cases so far as enlargement is concerned and do not know the significance of the borderline cases as determined by the roentgenologist.

Dr. M. J. Hubeny, Chicago (in closing). I appreciate the discussions of Drs. Durkin, Cantrell and Carr. The chief purpose of my presentation was to call attention to the substantial assistance that a roentgenological examination can render. It is so difficult to appraise practical values, without exaggeration or enthusiasm, because, frequently a sincere effort to establish an investigation as a fact or conclusion leads to fanciful deductions, of course, this to the undiscerning or inexperienced, results in error.

They are quite right in stating that no one can definitely say the amount of enlargement, if any, present in the borderline case and it is only by a thorough examination, using all available methods that this can be done with greater certainty.

I am sure that Dr. Cantrell did not intend to unqualifiedly condemn blood pressure readings and their significance; no doubt, it is now being realized that there is great latitude in what constitutes normal and how much importance is to be attached to certain variations.

In either event a routine chest examination should be done, because the mensuration is more accurate than the usual clinical methods and because of the discovery of accidental and unlooked-for lesions.

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CAUSES OF OBSCURE FEVERS IN INFANCY AND CHILDHOOD*

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By this term, "Obscure Fever," is not meant any new disease, but rather those clinical entities that are met with in every day practice. These conditions cause fever in children that is not determinable by examination for several days, or even for weeks, after the onset of the illness. It is hoped that as this dissertation develops, it may enlighten some as to what may have been encountered and not realized, or not recognized.

In the infant of a few days old, fevers are frequently found. Some, of course, are of simple etiology, and it is not with these that this paper deals. Those of the obscure type are the ones that it is desired to emphasize.

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A male infant, six days old, was seen in hospital, private room case, who for two days had a temperature of 100°F. On first examination nothing was found, only that the babe looked more sick than the findings seemed to warrant. On examination, nothing was found, only that the throat had a shiny appearance which seemed abnormal. A culture was taken. Next day a report of positive Klebs-Loeffler was given, and also a membrane was seen on the fauces. The nurse on this case was found to have a membrane on the surfaces of a bilobar tonsil.

Another example: Female infant of five days with temperature of 102°F. for two days. Examination was entirely negative. A catheterized specimen of urine was obtained. Cell count was thirty-five, and real leucocytes were seen. A culture twenty-four hours later gave a colon bacillus. History disclosed that this infant, on delivery, had been actually contaminated by excreta from the mother. A similar case had been seen some time before, in which the fever had been allowed to persist for a longer period before the infant was catheterized.

Another infant, twenty-four hours old, of the asthenic type; by which is meant an infant with feeble cry, dry, loose, scaly skin, responding slowly to external stimuli; whose examination was negative in all other respects, took food poorly, and had a temperature of septic type, ranging from 100° to 102°F. from first twenty-four hours. On the third day, 6% glucose was given by hypodermocylsis and after the third day of this treatment, temperature became normal and the infant responded as to taking food and gaining weight.

In older children, one is often seen with high fever, 102° to 105°F, with rapid respiration, and upon close examination and inspection a mild redness of the anterior pillars of the throat and some edema of the fauces, tonsils and pharynx is found. This throat condition becomes more marked, and is usually at its peak on the third or fourth day when the temperature has entirely receded. Then there is the youngster with temperature of only 100°F, with no pain, but very restless. On examination nothing is found until the ears are looked into. Here blebs are found on one or both ear-drums. This condition improves after three or four days, the ears returning to normal.

Edward K., four years of age, with very rapid difficult respiration, almost obstructive in type, upon examination showing no pathology of any kind; auscultation giving only referred sound from above. Temperature, 101°F., no increase through the day; respiration becoming more difficult and obstructive, and not relieved by intubation; smear showing nothing definite; death occurring in thirty-six hours. The post mortem disclosed only a severe purulent tracheitis with culture of pure bacillus influenzae of Pfieffer. Another case similar to this gave a pure culture of hemolytic streptococcus.

Rosalie B., infant of nine months, beautifully nourished, weighing well over 20 pounds, showed rapid respiration and marked cyanosis. Examination was absolutely negative. This being the finding of two other consultants. Temperature was 104°F. when first seen, and continuing a typical septic temperature curve with the peak as high as 106°F., for seven days. X-ray on first day was reported negative. On the fifth day, tubular breathing faintly heard in the upper left posterior thorax. On this day also, x-ray gave shadow in this location. The infant's temperature became normal, by crisis, on the seventh day. Blood count in this case was never over 15,000.

Mary S., infant of four months, when seen had rapid, difficult respiration, marked cyanosis, and very slight hyperemia of throat, respiration becoming more labored for forty-eight hours, when typical asthmatic findings were heard throughout the thorax, with the throat becoming more hyperemic. Temperature was never over 100°F. This same picture is seen many times in older children, and with them, too, is found an increasing hyperemia of throat.

A child, four years of age, was seen with rapid and difficult respiration. Temperature 102°F., persisting for several days. There were no findings of a positive nature until the fourth day, when glands on left side of neck seemed slightly enlarged. On the fifth day a post-tonsillar infection was found. These foregoing cases are presented because they are all similar in the inspection picture. Yet, all had fevers that were obscure, and each of these patients had different final pathology. The etiology and pathogenesis were, without question, much the same.

Again. A child of seven years with a low grade fever, 99° to 100°F., was seen. History disclosed that three or four weeks before, the child had a throat condition, and discharge from the left ear which, at time of examination, was dry. There was a complaint of headache, not severe at first. Examination in all other respects gave no positive evidence. After the fourth or fifth day the headache became more severe. A blood count and spinal fluid were normal. After the seventh day, with headache increasing, a second spinal puncture was done and many cells, in the hundreds, were found. Culture negative. An operation was performed, and a brain abscess was found on the left side where the ear trouble had been four weeks previously.

Between the ages of two and four, there is often encountered the child who gives a picture of mild upper respiratory infection with all the findings in the throat that this disease presents, and a temperature to correspond with its severity. For example: the case of John H., age three. The upper respiratory symptom complex subsided, but the temperature persisted, rising to as high as 101°F. This for many weeks; (in some cases it may be as long as six or eight). X-ray findings were of no value. All laboratory findings were negative. A blood count persistently showed mild lymphocystosis. At the end of the sixth week, a Manteau, 1 to

5000, was done giving positive reaction. After the eighth week the temperature disappeared. It is to be deduced that the patient had, in this period, received his initial tuberculous infection and had developed a degree of immunity.

Female child, three years old, when first seen had been ill for two weeks. Attending physician gave history and findings of mild upper respiratory disease. The urine had been negative and the throat had cleared. The day before, the patient was seen by attending physician, who reported observing a necrotic spot on the posterior right lower gum. This spot had increased on second day and a blood count gave the typical findings of an acute splenomyelogenous leukemia. It should be noted that this child's disposition had changed markedly in the five or six days preceding the finding of the distinctive pathology. Throughout the time after the upper respiratory symptoms had subsided, the temperature stayed between 100° and 101°F. This patient died within forty-eight hours after blood count was taken.

Not unusual is the child seen very often, who rapidly develops a temperature of 103° to 105°, and complains of pain almost everywhere; stiff neck, stiffness of legs, and discomfort generally. Examination shows tenderness wherever palpable glands are found; cervical, axillary, inguinal, etc. Next day, and often when first seen, urticarial wheals are found. The history is always the same in these youngsters. Toxin-antitoxin had been given, often years before, and recently, within a week, some other serum, usually antitetanic, has been administered. This clinical picture is seen so frequently that too much emphasis cannot be placed on it.

Jack H., boy, aged 14 years, was seen with the history that he had an evening temperature of 104°F. His examination was entirely negative until the fifth day when he complained of pain in his left shoulder. This all had occurred at a camp in Northern Wisconsin. The foregoing history was given over the phone by physician from that point. Patient was brought from there, and when seen on fifth day gave the appearance of being very toxic. He had swelling and redness of the left shoulder, a blood count of 20,000, polymorphonuclears 80%. The shoulder was opened and over spine of scapula pus was found. Twenty-four hour blood culture gave pure culture of staphlococcus albus. The same organism was recovered from pus from shoulder. From then on all joints and the thoracic cavity on both sides became involved. The same organism was recovered from pus from all points of localization. Death occurred in this patient at the end of the seventh day from onset.

Olga B., female child, aged 7 years, had septic type of temperature each day, from 104° to 106°F. This for two weeks and a drop each day to subnormal. Examination was entirely negative on all the days patient was seen. Repeated blood counts gave leucopenia of 3,500 to 5,000, and each count gave uniformly a lymphocytosis from 60 to 70%. Widal and paratyphoid reactions were negative. Blood agglutinated with Melitensis serum.

Infants and younger children are seen frequently with a temperature between 104° to 105°F. This each day for exactly four days, when the temperature drops to normal and a widespread rash of a bright red maculo-papular confluent type appears on the body. The typical erythema subitum. No other pathology is found.

These cases are cited as not rare, but are the types of illnesses that every physician meets with in his every day practice. That the term "Obscure Fever" may be applied to them, it is felt, is not incorrect. Each one of these cases, or the type it represents, was seen in consultation with the physician who was attending the case. There are cases where the fever is never explained. That is readily admitted. These cases are not as frequent as many physicians believe. For this reason this paper is presented—to emphasize that with careful examination and watchfulness, an honest diagnosis may be made, often before a real tragedy occurs. Some other types of illnesses with fevers that are obscure could be given, but all cannot be covered in the limited time.

MUCIN THERAPY: REPORT OF TWO CASES OF GASTRO-JEJUNAL ULCER WITH RECURRENT HEMORRHAGES*

J. ROSCOE MILLER, M.S. M.D. AND WILLIAM H. HOLMES M.D.

CHICAGO

Mucin as a therapeutic agent in the treatment of gastric ulcer was first introduced by Fogelson.[1] His work was based on earlier reports of Pavlov[2] and Ivy[3] which suggested that mucin served as a protective secretion and played a role in the neutralizing mechanism of the stomach.

Fogelson prepared mucin for clinical use by precipitation from a dilute hydrochloric acid solution of gastric mucosa at a p_H of 4.5 after the addition of an equal volume of alcohol. When dried and neutralized, this product was

*From the Department of Medicine, Northwestern University Medical School.

mucoid, viscous, readily soluble and had a high combining power, one gram of the powder combining with about 15 c.c. of 0.5 per cent. hydrochloric acid. This powder was administered to 12 patients, all of whom had classical histories and x-ray evidence of ulcer. Complete relief from symptoms resulted in all of the patients studied.

Following publication of the original article, reports were made by Atkinson[4] and Brown, Cromer, Jenkinson and Gilbert.[5] The former cited 85 carefully studied cases in which all experienced relief from subjective symptoms while on the regime. No failures are described. One patient died and at postmortem was found to have had a carcinoma of the head of the pancreas. The second report reviewed 37 cases, chosen because they had been intractable over a long period on strict management. All but one of the patients studied were relieved objectively and subjectively by mucin. No recurrences were reported. The one failure was subjected to surgery and a red, granulomatous tumor mass was found around a penetrating ulcer.

During the past two years we have used mucin in treating seven cases of peptic ulcer. These patients were selected because each gave a classical history of ulcer together with definite x-ray evidence. Three cases had hemorrhage and one a perforation prior to treatment with gastric mucin. No other therapy was resorted to except a bland diet and antispasmodics. The dosage of mucin varied from 40 to 90 grams each day, given either dry or in some vehicle such as milk, malted milk or broth.

Three patients are still taking mucin and are symptom free. Two have discontinued its use and when last seen had no complaints. The remaining two cases have had recurrent hemorrhages while on the mucin regime and as no mention is made of this in the reports which have appeared to date, we wish to review these two cases.

Case 1. C.H.B. a man, aged 64 years, entered Passavant Memorial hospital, June 29, 1931, because of weakness and black stools. In 1903 the patient first began to have epigastric distress coming on before meals and relieved by food. In the following 8 years the symptoms came in biennial cycles lasting from 6 to 8 weeks each time. Several gastric hemorrhages occurred during this period at which time he would vomit blood and his stools would become black. In March, 1911, a duodenal deformity was demonstrated by x-ray examination and the following month a gastro-enterostomy was performed. The patient remained practically symptom free until 1925, when without prodromal symptoms of any kind he had a profuse hemorrhage accompanied by hematemesis and melena. Since that time he has had recurrences of the bleeding every six months. Two days previous to admission he noticed that his stools were black. He did not vomit nor did he have any distress. The inventory by systems was essentially negative. The family history was interesting in that one brother, two sisters and two nephews all have duodenal ulcer.

Physical examination revealed a well nourished man whose skin and mucous membranes were pale. B.P. 140/70, Pulse 78, Temp. 98.6.

The pupils were contracted (Morphine had been given prior to admission). There was an arcus senilis. The mouth and throat were negative except for a mild gingivitis. The supra and infraclavicular spaces on the right side were sunken and there was impaired resonance over this area. There were no rales. The heart borders were within normal limits. There was a soft systolic blow at the apex. The abdomen was negative except for an old upper midline scar.

Laboratory: Erythrocytes 3,900,000; hemoglobin 55% (Newcomer); leucocytes 12,000. The Wassermann was negative. The urine examination was essentially negative. The stools were black in color and gave strongly positive tests for blood. The electrocardiogram was normal. The patient was treated symptomatically, morphine (gr. 1/6), nothing by mouth and fluids per rectum. Two days later he was placed on a modified Sippy regime. The erythrocyte count fell to 2,900,000 and the hemoglobin to 44% (N). July 3 a blood transfusion of 500 c.c. was given. July 9 alkalies were discontinued and mucin therapy begun. He was discharged from the hospital July 16. At this time he was taking a bland diet and 70 grams of mucin each day. Half of the mucin was taken in capsules and the other half in milk and malted milk.

His blood picture improved, the stools were normal and he suffered no discomfort until Sept. 18 when he contracted an upper respiratory infection. At this time he discontinued the mucin. September 28 he was again admitted to the hospital with evidence of hemorrhage. The stools were black, positive when tested for blood and the hemoglobin was 69%. He had suffered no complaints referable to the gastro-intestinal tract. The patient was again given mucin, 90 grams each day in solution, and this was continued after discharge from the hospital. Six months later another hemorrhage occurred. This however was not marked. He is at present on the same regime as when he left the hospital for the last time, and has no complaints.

Case 2. C.B.B. a man, aged 53 years, entered Passavant Memorial Hospital, Nov. 27 1931, complaining of weakness, pain in the abdomen and black stools. The patient gave a long history of gastric complaints dating back to 1891. In 1895 a diagnosis of duodenal

ulcer was made by Dr. S. Weir Mitchell. For years afterward the patient had frequent attacks of pain in the upper abdomen. In 1901 a gastric analysis showed a total acidity of 120. In 1903 he suffered a severe attack of angioneurotic edema. February 1920, a cholecystotomy and gastro-enterostomy were performed. A ligature was placed about the pyloric end of the stomach. In January 1927, he had an attack of pain in the epigastrium and for the following three days he noticed that his stools were black.

In February 1928, he had an appendectomy and August of the same year had another hemorrhage. January 1930, the gall bladder was removed. It was found to contain several stones. No sign of ulcer was found. The ligature, which at this time had been in place for 10 years was removed from around the pylorus. Recovery was uneventful.

Examination revealed a well nourished white male who looked ten years younger than the stated age. The skin and mucous membranes were pale. B.P. 118/78. Pulse 72, Temperature 98.4. There was an old injury to the left eye. There were some moist rales in the base of both lungs which disappeared upon deep inspiration. The heart was essentially negative. The abdominal wall was flaccid, there was no tenderness, there were old scars of a bilateral herniotomy, an appendectomy and a gastro-enterostomy and cholecystectomy. There were no other physical signs of note.

Laboratory: Erythrocytes, 3,200,000, leucocytes 7000 and hemoglobin 26% (N). The differential and platelet counts were normal. There was a moderate anisocytosis, slight achromia and some poiklocytosis. The Wassermann was negative. The bleeding and coagulation times were normal. Blood calcium was 12.0 mg. per 100 c.c. The urine contained many hyalin casts and a trace of albumin. Stools contained blood and fermentation tests were strongly positive for B. Welchii. X-ray and fluoroscopic examinations, made 10 days after entrance, showed no abnormality of the colon.

Treatment consisted of powdered mucin, 90 grams each day, divided into 11 doses and given in milk. The diet was soft. Tincture of belladona (M XV) 1 c.c., and a hematinic were given three times a day.

The patient remained in the hospital for a period of two weeks. During this time there was a slight increase in the red blood cells and hemoglobin. Following his discharge from the hospital he continued to take mucin (90 grams) and remained on a bland diet. His improvement was rapid until at the end of 4 weeks the erythrocyte count was 4,800,000 and the hemoglobin 100%. There was an increase of 14 pounds in weight. At this point the hematinic was discontinued and the mucin reduced to 60 grams each day. The patient still complained of occasional epigastric distress and of flatulence. May 24 the patient felt very well and the mucin was reduced to 40 grams per day. On June 21 he complained of pain under the lower part of the sternum. At this time he was suffering from a sore throat and sinus infection. Mucin had been taken continuously for 7 months. June 23 all epigastric distress had disappeared and the head infection was much improved. On this date the patient first noticed that his stools were black, and a sample was strongly positive for blood. A blood count made on the following day showed 3,890,000 erythrocytes and hemoglobin of 74%. He went to bed and resumed a liquid diet, the dosage of mucin remaining at 40 grams daily. The stools became a normal color, the patient complained of no symptoms and in one week he returned to work and his previous regime.

July 15 the hemoglobin had risen to 105 per cent. and the erythrocytes to 4,800,000. July 19 another hemorrhage occurred with tar colored stools which persisted for about one week. At this time the patient complained of malaise and dull pains in the lower extremities. There was again a decrease in the hemoglobin and red count, but no complaint of abdominal discomfort.

COMMENT

Seven cases of peptic ulcer treated with gastric mucin are reported. Two of these were probably gastro-jejunal ulcer and are reported in detail. Both had several hemorrhages prior to mucin therapy and both had recurrences while on this regime. Recovery was rapid after each hemorrhage and there was an alleviation of symptoms despite the repetition of bleeding.

It is of interest that in three instances hemorrhage followed an acute infection.

30 North Michigan Ave.

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Society Proceedings

RANDOLPH COUNTY

The regular monthly meeting of the Randolph County Medical Society convened in Evansville on Thursday evening, October 12. Luncheon was served by the ladies of the Evangelical Church where the meeting was held. Dr. Beattie of Evansville opened the discussion on professional ethics and Dr. Templeton of Pinckneyville led the discussion on medical fees. All physicians and some of their wives took part in the discussion. It was a very successful meeting with a good attendance and an interesting program.

O. C. Church, M. D., Secretary.

Marriages

Theodore Hartley, Bradford, Ill., to Miss Ethel McCarron of Chicago, October 10.

William F. Myers, Coal Valley, Ill., to Miss La Verne Madison of Moline, June 28.

Personals

Dr. Charles D. Center, president-elect of Illinois State Medical Society, is recovering in Blessing hospital, Quincy, from injuries received, October 8, in an automobile accident.

Dr. J. P. Greenhill of Chicago addressed La Porte County Medical Society on "Recent Advances in Obstetrics and Gynecology, October 19.

Dr. Charles H. Mayo, Rochester, Minn., among others, addressed the Chicago Association of Commerce, October 11, on "Good Health Essential for Sustained Recovery."

At a meeting of the DeKalb County Medical Society, September 28, Dr. Clement L. Martin, Chicago, spoke on anorectal diseases.

Dr. Francis E. Senear, Chicago, discussed "Role of Fungus Infections in Dermatology" before the Will-Grundy Medical Society, Joliet, September 27.

Dr. John A. Wolfer, Chicago, spoke on "Surgical Management of the Jaundiced Patient" before the Peoria City Medical Society, October 3.

Dr. Charles P. Emerson, Indianapolis, spoke, among others, before the Vermilion County Medical Society, October 3, on "Lessons from Medicine of the Orient."

At a meeting of the Williamson County Medical Society in Marion, October 3, among others, Dr. Frank J. Jirka, state health officer, Springfield, discussed epidemic encephalitis.

Speakers before the Chicago Council of Medical Women, October 6, were Drs. Alice K. Hall and Georgiana D. Theobald on "Treatment and Education of the Profoundly Deaf Child" and "Ocular Tumors in Children," respectively.

At a meeting of the Chicago Pathological Society, October 9, Dr. Edward H. Hatton gave his official address as president on "The Origin and Pathologic Significance of the Epithelium Found About the Roots of Teeth."

The Chicago Society of Allergy was addressed October 16 by Drs. Isadore Pilot and Isidor Harrison Tumpeer on "Focal Infection and Allergy" and "Hyperergic Response of Allergic Children to Infection," respectively.

The Chicago Gynecological Society was addressed at its fifty-sixth annual meeting, October 20, by Gordon J. Laing, Ph. D., on "The Medicine Man," and Dr. William F. Peterson, "Meteorological Associations of Disease."

At a meeting of the Chicago Ophthalmological Society, October 16, Drs. Agnes Beulah Cushman and Samuel I. Meyer presented reviews of the 1932 literature on trachoma, tuberculosis, retinal detachment and intra-ocular tumors, and glaucoma, respectively.

The McDonagh Society for Clinical Research was addressed, October 20, by Drs. Paul G. Pomeroy, Ottawa, and Kamil Schulhof on "Treatment of Polyarthritis" and "An Alleged Mechanical Detector of Disease," respectively.

Dr. Ralph Pemberton, Philadelphia, addressed a joint meeting of the fifth councilor district of the Illinois State Medical Society and the Sangamon County Medical Society, October 5, on the control of rheumatism.

Leonard F. Weber of Chicago spoke on "Common Diseases of the Skin," illustrated with lantern slides, before the Kane County Medical Society at the Sherman Hospital, Elgin, October 11.

Doctor James P. Simonds, professor of pathology at Northwestern University Medical School, is now Illinois state chairman of the American Society for the Control of Cancer.

News Notes

—The December 7 meeting of the Sangamon County Medical Society will take the form of a Symposium on the Newer Methods of Diagnosis and Treatment of Chest Diseases. The following men from the Washington University School of Medicine, St. Louis, will be in charge of the program:

—Millard Fillmore Arbuckle, Assistant Clinical Professor of Oto-Laryngology; Evarts Ambrose Graham, Bixy Professor of Surgery; Jacob Jesse Singer, Associate Professor of Clinical Medicine.

—For the fifth consecutive year the Educational Committee has been requested to sched-

ule lectures for the Pre-Medical Pre-Dental Club of Y. M. C. A. College. The first of the series was given on October 20.

—Dr. George Minot, professor of medicine, Harvard Medical School, Boston, delivered the first Jessie Horton Koessler Lecture of the Institute of Medicine of Chicago, October 23, on "Anemia, Etiology and Treatment." The meeting was held jointly with the Chicago Society of Internal Medicine at the Chicago Woman's Club.

—Dr. Alfred Blalock, associate professor of surgery, Vanderbilt University School of Medicine, Nashville, gave the fifth annual Arthur Dean Bevan Lecture of the Chicago Surgical Society at the Chicago Woman's Club, October 20 on the subject: "Acute Circulatory Failure as Exemplified by Shock and Hemorrhage."

—Arrangements have been completed by the Illinois State Health Department to survey the health work and needs of schools in Elgin, Nokomis, Litchfield, Lebanon, Newton, Oblong, Altona and Browning, as a part of a state-wide health program. The school surveys, which are made on request, are conducted by Dr. Robert C. Cook of the division of child hygiene.

—The Illinois State Health Department instituted a series of scientific programs for county medical societies at a meeting of the Fulton County Medical Society in Canton, October 18, as part of a campaign against epidemic diseases. Four illustrated lectures covering encephalitis, infantile paralysis, influenza, pneumonia, diphtheria, scarlet fever and other epidemic diseases will be presented at each meeting by staff members of the health department. Lectures have also been scheduled for meetings in Charleston, Champaign, Danville, Marion, East St. Louis and Quincy.

—Members of the staff of St. Louis University School of Medicine presented a program before the Adams County Medical Society in Quincy, October 9, as follows:

Dr. Cyrus E. Burford, Nephropexy and Ureterolysis as Conservative Surgery.

Dr. William T. Coughlin, Injuries to the Brain.

Dr. Ralph A. Kinsella, Encephalitis.

Dr. William E. Leighton, Evolution of Spinal Cord Surgery.

Dr. LeRoy Sante, Radiation in the Treatment of Malignant Disease.

Dr. August A. Werner, The Sex Hormones.

Alphonse M. Schwitalla, S. J., Ph. D., dean of the School, made an address at the banquet on the report of the Committee on the Costs of Medical Care.

—Dr. Chevalier Jackson, professor of bronchoscopy and esophagoscopy, Temple University School of Medicine, Philadelphia, will address the Chicago Medical Society at the first Fall meeting, November 1, open to the public, on "Bronchiectatic Septic Tank and Its Prophylaxis." This talk will be discussed by Drs. Samuel J. Pearlman and Carl A. Hedblom. Dr. Jackson will also speak at a reception and dinner to be held in his honor in the dining room of the Medical Arts Club before the meeting. His subject will be "Is It Advisable to Treat Post-Tuberculous Cicatricial Stenosis of the Larynx?" The dinner meeting is being sponsored by the medical society and its Aux Plaines branch with the Chicago Laryngological and Otological and Chicago Tuberculosis societies.

—Dr. Hugh H. Young, clinical professor of urology, Johns Hopkins University School of Medicine, Baltimore, presented the fifth annual William T. Belfield Lecture before the Chicago Urological Society at the Palmer House, October 18. Subject: "Diagnosis and Treatment of Prostatic Obstruction."

—The Illinois Radiological Society, at its quarterly meeting, October 29, 1933, in Peoria, presented the following program:

Dr. Flinn, Two cases of Chest Pathology (St. Mary's, Decatur).

Dr. W. G. Bain, two cases of Bone Pathology (St. John's, Springfield).

Dr. H. Swanberg, two cases of G. I. Pathology (Quincy).

Dr. Ivan Brouse, two cases of Gall Bladder Pathology (Jacksonville).

Dr. P. B. Goodwin, two cases of Urological Pathology (St. Francis, Peoria).

Dr. E. G. C. Williams, two cases of Therapy (Danville).

Dr. Robert McIntosh, Bloomington, "Demonstration of the Prostatic Urethra."

Dr. Arthur Sprenger, Peoria, "Renal Tumors."

Dr. Roswell Pettit, Ottawa, "1933 Radiological Observations in Europe."

Deaths

HARROLD ALBERT BACHMANN, Chicago; University of Pennsylvania School of Medicine, Philadelphia, 1917; a Fellow, A. M. A.; member of the Central States Pediatric Society; on the staff of St. Luke's Hospital; aged 41; died, September 21, of angina pectoris.

JULIUS BUZIC, Chicago; Universität Basel Medizinische Fakultät, Basel, Switzerland, 1915; a Fellow, A. M. A.; aged 72; died, May 26, of coronary thrombosis and chronic myocarditis.

JOHN CLARK CORBUS, JR., Mendota, Ill.; State University of Iowa College of Medicine, Iowa City, 1884; member of the Illinois State Medical Society; aged 72; died, September 16, in the Washington Boulevard Hospital, Chicago, of pneumonia.

ARTHUR MILLS CORWIN, Chicago; Rush Medical College, Chicago, 1890; a Fellow, A. M. A.; at one time demonstrator of physical diagnosis at his alma mater and professor of physical diagnosis, College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, associate professor of otology, rhinology and laryngology, Chicago College of Medicine and Surgery and the Bennett Medical College; fellow of the American College of Surgeons; aged 69; on the staffs of the Chicago Eye, Ear, Nose and Throat Hospital and the West Suburban Hospital, Oak Park, Ill., where he died, September 9, of chronic nephritis, uremia and myocarditis.

LOUIS HENRY ENOS, Alton, Ill.; Hahnemann Medical College and Hospital, Chicago, 1918; member of the Illinois State Medical Society; aged 43; on the staff of St. Joseph's Hospital, where he died, October 4, following an operation for appendicitis.

HENRY E. GOLDBERGER, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; a Fellow, A. M. A.; aged 63; died, September 23, of carcinoma of the bladder.

CHARLES JONES GOSE, Kinderhook, Ill.; Missouri Medical College, St. Louis, 1899; formerly postmaster of Kinderhook; aged 61; died, September 22, in the Blessing Hospital, Quincy, of a self inflicted bullet wound.

CHALMER ROSWELL HECOX, Golden, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1897; member of the Illinois State Medical Society; aged 58; died suddenly, September 8, of heart disease.

CHARLES WILLIAM HOLLNAGEL, Chicago; Chicago College of Medicine and Surgery, 1913; aged 58; died, September 26, of chronic myocarditis and coronary adclusion.

JOSEPH MILTON LAWSON, Sidney, Ill.; University of Michigan Medical School, Ann Arbor, 1885; a Fellow, A. M. A.; aged 75; died, September 25, in the Burnham City Hospital, Champaign, of cholecystitis.

JAMES BUCKNER LEWIS, Salem, Ill.; Eclectic Medical Institute, Cincinnati, 1878; aged 80; died, August 29, of carcinoma of the prostate.

MYRON CORY LYONS, Winnetka, Ill.; New York University Medical College, 1896; aged 73; died, August 13, of heart disease.

KATE A. MACHIN, Macomb, Ill.; Keoguk (Iowa) Medical College, 1898; member of the Illinois State Medical Society; aged 72; died, August 6, of carcinoma of the liver.

J. CLINTON MAXFIELD, Hettick, Ill.; St. Louis College of Physicians and Surgeons, 1891; aged 72; died, August 12, of cardiac asthma.

JOHN K. MORADIAN, Chicago; National Medical University, Chicago, 1897; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1901; member of the Illinois State Medical Society; aged 61; died, August 13, of bronchopneumonia and myocarditis.

CHARLES S. NELSON, Springffield, Ill.; Missouri Medical College, St. Louis, 1891; a Fellow, A. M. A., and former Councilor of Illinois State Medical Society; aged 73; died, September 18, in a local hospital, of pneumonia.

VINCENZO NUZZO, Chicago; Regia Università di Napoli Facoltà di Medicinia e Chirurgia, Italy, 1902; member of the Illinois State Medical Society; aged 60; died, June 7, of cerebral thrombosis and cerebral hemorrhage.

OSCAR OFNER, Chicago; Hungarian Royal Pázmány Petrus University of Sciences, Medical Faculty, Budapest, Hungary, 1898; member of the Illinois State Medical Society; fellow of the American College of Surgeons; on the staffs of St. Elizabeth's, St. Joseph's and Alexian Brothers' hospitals; aged 59; died, October 2, of heart disease.

JAMES CLAUDE PAINE, Peoria, Ill.; Northwestern University Medical School, Chicago, 1898; serving during the World War; aged 58; died, August 17, of a self-inflicted bullet wound.

CHARLES C. PECK, Harvard, Ill.; Hahnemann Medical College and Hospital, Chicago, 1895; member of the Illinois State Medical Society; formerly county coroner; at one time proprietor of a hospital bearing his name; aged 62; died September 17.

PHINEAS A. RENIE, Union, Ill.; Hahnemann Medical College and Hospital, Chicago, 1891; member of the Illinois State Medical Society; aged 66; died, August 18, as the result of injuries received in a fall several weeks ago.

FRANK HENRY RUSSELL, Eldred, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1888; aged 70; died, September 10, of chronic nephritis.

HENRY CLYDE TELFORD, Ottawa, Ill.; University of Michigan Homeopathic Medical School, Ann Arbor, 1905; aged 61; died, June 22, in the Ryburn Hospital, of peritonitis and ruptured appendix.

T. W. WILLIAMS, Litchfield, Ill.; American Medical College, St. Louis, 1879; aged 78; died suddenly, August 31, in St. Luke's Hospital, Davenport, Iowa, of hemorrhage due to duodenal ulcer.

SOLOMON L. ZELTNER, Chicago; Rush Medical College, Chicago, 1895; member of the Illinois State Medical Society; aged 71; on the staff of St. Mary of Nazareth, where he died, August 11, of heart block.

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